

# The Commercial Car Journal

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NUMBER 6

## YOU HAVE TO "GET OUT OF THE OFFICE" TO SELL THEM!

*The Cawood Brothers Have a Small Salesroom  
But They Sell a Bunch of Chevrolet Trucks. Sales-  
men Are Out All the Time Digging Up Prospects*

**T**ARRYTOWN, N. Y. is where Chevrolet cars and trucks are built. It is also where Cawood Motors, handling Chevrolets, is located. This concern took over the agency in May, 1923, from another concern and inside of five months increased the business 90 per cent. The two Cawood brothers manage the business. C. Allen, who is general manager, looks after the business end and Harry Cawood conducts the service department. This division of the business plus energetic sales methods accounts for the success they have made

in merchandising the half-ton and ton trucks.

The sales and showroom is on South Broadway, the main thoroughfare, or what is known as the Post Road to Albany. The salesroom is small with room to display two cars at the most. The company does not believe, that the bulk of cars are sold

in the showroom but **outside**, and that the day is past when the prospect will drop in and sign the order. The business is outside and is gone after and, while the practice is not to ring



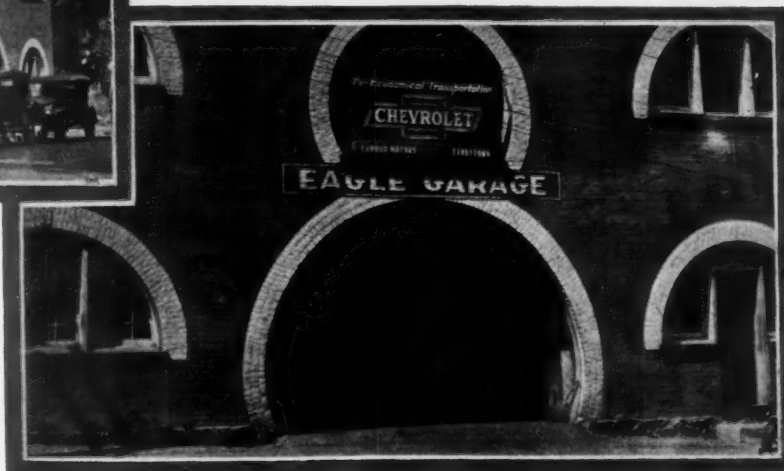
The Concrete Brick Addition is Shown in the Illustration Above.

The Sales and Showroom of Cawood Motors is Small But the Sales Volume is Large.

The Original Service Station of Cawood Motors Has Rather an Odd Entrance.



Note the Advertising Slogan on the Windows



every door bell the territory is combed for real prospects.

Emmett Taxter, sales manager, who by the way is an old timer in the industry, having sold steamers in the early days said in speaking of prospects, "We do not ring doorbells, literally, but we do comb the territory for all real purchasers. We do not believe effort should be wasted in trying to interest anyone in buying a car who cannot afford to keep up the payments after the initial payment."

#### Territory is Worked Thoroughly

Cawood Motors is pushing the sale of light trucks and is not experiencing any difficulty in making sales. Four outside salesmen are employed. They are allotted certain sections or zones. Every business concern using transportation is canvassed and as there are many stores and merchants to say nothing of farms, contractors, etc., there are plenty prospects for new trucks and for replacements.

An interesting feature of the truck sales is the local angle. The merchants of the town derive considerable business from the employes of the Chevrolet factory and the slogan of "patronize home industry" is used to advantage by the salesmen of Cawood Motors. A large number of sales are made by this method for the merchant is shrewd enough to realize the psychology of delivering goods in a Chevrolet truck.

The territory is not confined to Tarrytown alone but takes in Dobbs Ferry, Ossining, Ardsley, Irvington, etc., and here there are four salesmen operating. Then there are official parts and service stations in these places so that the buyer is assured good and prompt service.

#### Service of Greatest Importance

Cawood Motors believes service is more important than sales so when the company was organized Harry Cawood elected to take charge of parts and service. The

service station is located on Central avenue, a few blocks from the office. It is a large building, which was originally designed for a garage. The adjoining building was also taken over, thus providing a lot of space for service which is quite a contrast to the usual method of subordinating service to sales.

The service station is well-equipped with machinery and shop equipment and a washing department. The service is given on the Chevrolet flat-rate basis although some customers prefer the old hour and material basis due to the efficiency of the mechanics and shop. Charts show the customer what any operation plus parts cost and this is very helpful where new owners are concerned. Many times a new owner will meet with accidents and when a payment is due. With the flat rate he knows in advance exactly what it will cost and this saves argument.

The Cawoods state that 70 per cent of the trucks in the territory are being serviced at their station. This proves that when the service station is conducted by a man who knows service and satisfactory service is rendered at reasonable rates, the owners will patronize the dealer.

All types of bodies are sold by the company and they are sold at list. There are three body concerns within a reasonable distance and the chassis is taken to the body maker where the body is mounted and lettered. Many body sales are made by the customer who asks for a type "like so and so has" which proves the value of the silent salesman—the satisfied customer.

Cawood Motors has the right slant on the trade-in problem. As a matter of fact the trade-in competition doesn't worry this concern for it has learned that it is much better to say **NO** to a bad trade and let the other dealer get the costly experience.

"We prefer a balance in the bank to one in the back yard," was the expression

made to the writer when he asked about the trade-in. All trucks or cars offered in trade are submitted to the service manager Harry Cawood and he sets the price, one that is fair to both the prospect and to the company. The price is final, and if the other dealer raises the ante, he gets the sale. Of course, the prospect isn't curtly dismissed. The company makes an effort to show him that he will be better off financially in the long run by buying a truck with real service in back of it than a truck without service facilities.

#### Keeping in Close Touch With Customer

The owner is well cared for during the 90 day warranty period. After that period he is constantly advised to have his truck frequently inspected and lubricated. The company states that business is good in the truck line and that prospects for increased sales are good.

There is no real secret of the success of this young concern. Both of the members work hard and expect their salesmen and employes to do likewise. But real service is a big factor which proves that maintenance costs assist in getting the repeat order and selling the other fellow through satisfied users. The case of Cawood Motors proves that light trucks can be sold if the effort is directed along the right lines.

World war army surplus supplies costing the government \$3,764,939,101, have been liquidated since the armistice by the government. Of this amount approximately \$16,000,000, consisted of automotive equipment, according to figures of the office of the Army's Chief coordinator. From the total sales the Federal Treasurer has received \$1,295,089,732. Much of the surplus stock, and especially so in the case of used trucks and automobiles, has been transferred from the War Department to various other departments.

### Registrations on July 1 Show 15,523,898 Motor Vehicles in the United States

States	Total Registrations			States	Total Registrations		
	of Cars and Trucks	Passenger Cars	Trucks		of Cars and Trucks	Passenger Cars	Trucks
Alabama	133,309	118,378	14,931	Nevada	15,995	12,500	3,495
Arizona	49,161	42,536	6,625	New Hampshire	64,370	56,770	7,600
Arkansas	116,865	103,602	13,263	New Jersey	435,894	338,133	97,761
California	1,180,800	1,015,024	165,776	New Mexico	35,273	30,100	5,173
Colorado	187,675	174,677	12,998	New York	1,169,145	963,564	205,581
Connecticut	185,763	156,621	29,142	North Carolina	285,000	260,000	25,000
Delaware	35,000	31,000	4,000	North Dakota	102,824	100,000	2,824
District of Columbia	75,401	66,912	8,489	Ohio	1,160,000	999,300	160,700
Florida	170,000	136,000	34,000	Oklahoma	295,000	275,000	20,000
Georgia	175,100	152,500	22,600	Oregon	161,739	149,647	12,092
Idaho	63,268	56,481	6,787	Pennsylvania	1,088,387	931,465	156,922
Illinois	986,480	862,452	124,028	Rhode Island	78,413	64,145	14,268
Indiana	581,575	508,831	72,744	South Carolina	139,245	125,964	13,281
Iowa	569,358	531,662	37,696	South Dakota	127,400	117,812	9,588
Kansas	361,031	327,207	33,824	Tennessee	165,170	147,000	18,170
Kentucky	214,000	192,000	22,000	Texas	661,949	614,043	47,906
Louisiana	143,000	121,000	22,000	Utah	67,133	58,784	8,349
Maine	105,061	89,263	15,798	Vermont	52,614	49,053	3,561
Maryland	175,718	165,636	10,082	Virginia	229,784	197,052	32,732
Massachusetts	561,836	481,598	80,238	Washington	290,438	227,015	63,423
Michigan	765,044	692,090	72,954	West Virginia	151,222	133,572	17,650
Minnesota	462,777	429,627	33,150	Wisconsin	474,063	429,784	44,279
Mississippi	114,070	102,663	11,407	Wyoming	37,800	33,700	4,100
Missouri	477,056	430,621	46,435				
Montana	69,100	61,100	8,000				
Nebraska	276,592	250,592	26,000				
				Totals	15,523,898	13,614,476	1,909,422



## TAKING THE "GUESS-WORK" OUT OF THE ESTIMATE

**This Distributor Has Compiled a Lot of Information Which Permits the Dealer or Salesman to Quote the Customer Immediately on Any Combination of Body, Equipment and Chassis**

**A**LL the attributes necessary for a successful selling organization are behind the Universal Auto Sales Corp., 5860 Baum Blvd., Pittsburgh, Pa., distributor of Republic motor trucks in the western half of Pennsylvania and several counties in West Virginia and Ohio. The location of the plant is excellent; the shop layout is good and the company personnel possesses aggressiveness, honesty, experience, ambition and common sense. Republic trucks are being sold and if the plans of Adolph A. Blattner, general manager are carried out, 1924 will be a big truck year for the Universal Auto Sales Co.

Mr. Blattner has very sensibly organized his work so that much of the detailed operation is in the hands of his assistants. Matters are in such shape that he is able to get out a greater part of his time in the dealer territory and has been able to line up a number of new dealers and straighten out difficulties that have originated in the dealer territory.

### Favors Salesman With Technical Training

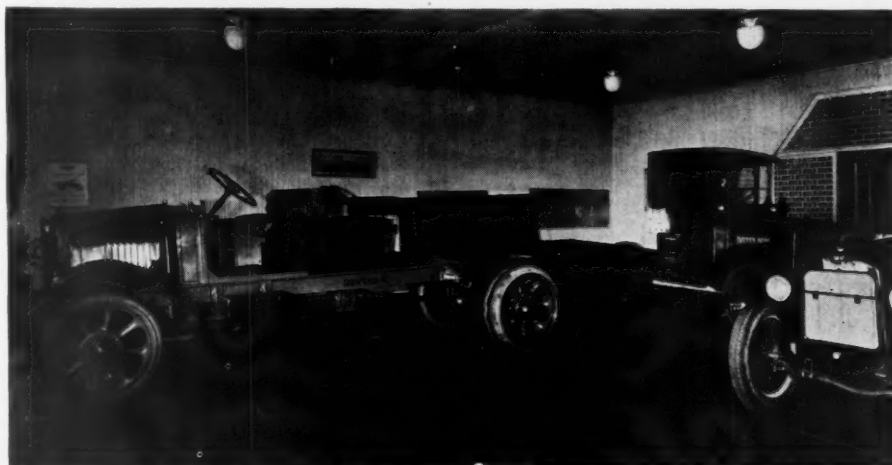
In George K. Linton, Mr. Blattner possesses an assistant of rare ability. At one time Mr. Linton was service manager at the Master factory, also with the Republic branch in Chicago. His experience also covers service with the Republic distributor in Kansas City.

Mr. Linton has a number of original ideas on truck merchandizing that he is fast putting into practice. He believes that the old type of personality salesman, one who sells on his hand-shaking persuasive ability, is fast passing. In his place is coming the student of transportation who uses as his sales arguments a complete analysis of the prospect's needs, appealing to his intelligence rather than to his emotions. He favors the salesman with technical training and best of all the

man with some transportation experience. He believes that successful truck merchandizing is founded on three qualifications: (a) selling ability, (b) a practical knowledge of transportation and (c) a fund of common-sense conservatism.

### Mechanics Specialize on Units

The Universal Auto Sales Corp. maintains a personal contact with its mechanics that has been productive of much good. The men have been picked with great



Showing Part of Salesroom and Portable Sign Which Can be Easily Moved From One Demonstrator to Another



Section of Stock Room Where Small Parts are Stored

care, the specialized mechanic system being used. The force now includes a Continental engine man, a Buda man and a Timken rear man.

The used truck situation is handled by a used car manager who acts as the appraiser. When a lead is given he goes out to see the truck, estimates the value of the truck, the cost to recondition and to paint it. Salesmen are all instructed to push used cars, as much as possible to keep the stock down, the company has not been losing money of this phase of business and at the same time has been able to keep the number down very low.

Within 10 minutes of the Universal organization, three body and truck equipment jobbers are located. This is extremely fortunate as almost any kind of a special body job can be handled. Often when Blattner or his assistant strike a difficult prospect who has to be sold on a body job, the services of a body man is called, who helps to close the sale. Wood hoists and bodies are handled by the Auto

Truck Equipment Co., Heil equipment can be obtained from the Mayer Body Corp., and St. Paul hoists and bodies are supplied by the Hydraulic Hoist and Body Co.

Retail sales for the Pittsburgh district are handled by five salesmen. Each man has his own passenger cars. The city has been divided into five territories, each territory having a balance of manufacturers and retailers so that one location has less possibilities than another. Every salesman subscribes for the Commercial Car Journal and watches very carefully all new developments in the truck field.

The management does not believe employing the specialized or vocational salesman; a man with a fundamental knowledge of transportation principles can solve almost any of the various problems that may be brought into the sales department.

Much of the dealer contact work is handled by Mr. Blattner himself. Realizing that the salesman or dealer who has information at his finger tips which he is able to dispense without much delay is the one who stands the best chance of making a sale, Mr. Blattner with the assistance of Mr. Linton has prepared several volumes of information that serve as ammunition for aiding sales. The term "volume" is not misapplied, as all the data has been bound in book form that occupies considerable space in the brief case.

Tables of prices for every conceivable form of body equipment have been prepared. If a prospect is found who de-



A Special Panel Job Built on a Light Republic Chassis for a Local Wholesale House

mands certain type of dump body with a special cab and a number of accessories, the salesman may turn to his data book and compute the total cost in a few minutes.

Of course it is not rare to find a salesman carrying equipment prices, but we venture to say that there are very few companies in the country who have fortified their salesmen and dealers with detail information covering every possible type of commercial car transportation, as thoroughly as the Universal Auto Sales Corp. This data has been prepared by working very closely with the body dealers

in the vicinity and by co-operating with the factory.

There is one stunt used which has been productive of much good will and free advertising. Whenever a truck is sold, a photograph is taken of it and a frame copy is sent to the buyer, who invariably hangs it in his place of business.

At the Pittsburgh sales room a removable sign (see illustration) is used on demonstrating chassis. It is often left standing in the street of Pittsburgh, having much the same effect as a billboard. The sign can be moved from one car to another with little trouble.

## Unique Body on Bus Chassis for Transporting Race Horses

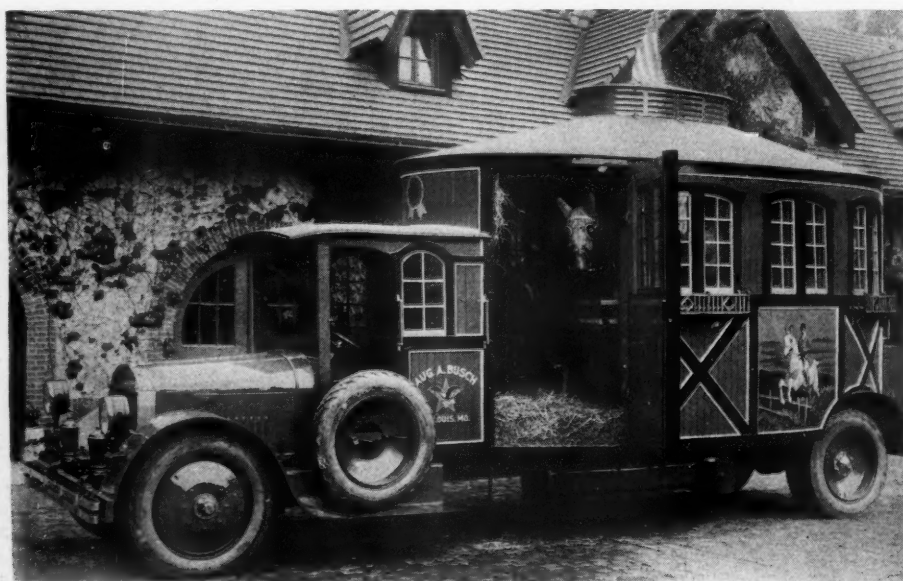
RACE horses are usually moved from track to track by rail in box cars or by motor trucks. The former method had never been entirely satisfactory because of the inconvenience to loading and unloading the horses in the freight yards and because of the jostling these high spirited thoroughbreds received. Later,

railroad transportation was supplanted by motor trucks, they being able to offer better facilities, yet they too failed to meet the conditions of speed and riding comfort.

Credit is given to Mr. August A. Busch, President of the Anheuser-Busch, Inc., for the design and construction of a body for the express purpose of transporting race

horses, mounted on a passenger carrying chassis. The illustration shows the product of his conception, which is now in use. Two horses can be transported at one time. The body is mounted on a Mack bus chassis.

There are three large doors for loading and unloading purposes, and a small door opening into the driver's cab that permits convenient and quick access to the interior. The animals are loaded at the rear door and are unloaded from the forward door, one on each side. The ramp that is provided, can be hooked up to the forward or rear doors at will, and when not in use is stowed away between the two walls of the center partition dividing the stalls. The sides of the ramp when detached are nested and strapped to the rear wheel housings. With such facilities always at hand, this transport permits the loading and unloading of horses right at the paddock gate, without inconvenience or difficulty.



This Outfit Carries Two Race Horses at a Time

### McFarland in New York

The Automotive Electric Service Association has moved the office of its general manager, G. T. McFarland, from Trenton, N. J., to room 306, 1674 Broadway, New York City. The change was made by the board of directors for the convenience of the out of town members. The new office will be the headquarters for all members of the association.



# The Flat-Rate System

*The Wise Dealer Will Get Busy Now Developing the System Before Competition Forces Him to—Then It Might be Too Late*

By C. P. SHATTUCK\*

**T**HE number of truck dealers and distributors employing the flat-rate method in service is very small. There are even less operating their service departments under the piece-work plan which is a development of the flat-rate system. Strange as it may appear, the truck industry is not sold on either system. Both methods have been frequently discussed and while there appears to be no sound reasons advanced against the flat rate, the truck industry holds aloof. WHY?

The opponents of the flat rate say that it is not necessary; that the time and material method is best when the service station enjoys the confidence of the truck owner and he pays promptly and cheerfully. Under these conditions, which are rare, the hour basis may be satisfactory, provided, however, the service station is making a reasonable profit.

The anti-flat-raters say that the system is A1 in theory but that it will not work out in practice. It doesn't unless a number of factors having to do with its success are considered before any part of the system is tried out. The flat rate cannot be put into effect on short notice. It will not be successful, either with the customer, mechanic or dealer if the rates, times, etc., are based on guesswork. Neither will it work out satisfactorily from a financial standpoint unless it is checked from time to time.

## Why Some Failed

Those who have tried the flat rate and gone back to the old hourly method either did not give it a fair trial or else introduced it without giving consideration to what makes the system a success. A few of the causes for failure are as follows:

Lack of accurate records on the time for a given operation or steps leading to same.

Not selling the mechanics.

Lack of co-operation by department heads.

Inadequate machinery and shop equipment.

Unskilled labor.

No definite knowledge of the cost of labor and overhead.

These will be discussed in logical sequence.

The passenger car industry, generally speaking, held aloof from the flat rate when it became noised about that a new system of automobile repairing was at

hand. Even at the factory service managers' conventions those who endorsed it met with hearty opposition. But in the meantime, dealers of the broad-minded and visionary type, who saw the new car sale advantage, studied the plan and gave it a trial. The dealers who started right and continued right made a success, and the flat rate became universal, that there are few cities today where it is not being practiced. Even the independent service stations employ it and some garages use it, so it must be right.

## Fundamentals of Service

The fundamentals of the flat rate are right. We will all agree that the target the service industry is shooting at, is to provide satisfactory service to the owners, at a reasonable price and time and for the

## HAVE YOU ANY OBJECTIONS TO THE FLAT-RATE SYSTEM?

**T**HIS publication has been advocating the flat-rate system long before it became popular in the passenger car industry. If the large passenger car organizations have found this system to be worth while and a means of producing increased sales and satisfied customers, it certainly ought to be the logical system for the truck industry to adopt. What are your objections to it? We will gladly publish your comments in these columns.

service station to secure a reasonable profit. Service is not satisfactory if there be any doubt whatsoever in the mind of the customer as to the value received.

There will always be an argument as long as the unknown factor is permitted to function in service. What the mechanic and service head knows is not known or appreciated by the customer and never will be. It is impractical to educate all owners to the fact that the renewing of a \$1 part may cost \$10 or \$15 in labor. The customer always looks at the total! It is because he is not satisfied, or believes he isn't, that so many truck owners go elsewhere for service after the free service period expires.

**Reasonable Price.** The price is not reasonable to the truck owner when it is an unknown quantity. It matters not if the

shop makes an allowance to the kicker or has a low price per hour for labor. The owner is not and never will be satisfied as long as the unknown functions.

The price is not reasonable if the time taken to complete a given operation is in excess of what it should be. If a mechanic consumes three hours when he could do the work in two, and without any undue haste or effort, then the time is unreasonable. And right here the writer goes on record in stating that the sum paid by owners for waste time by mechanics is tremendous. This is not a criticism of the mechanic, but a statement of fact.

## Why Mechanics Won't Produce

Mechanics will not produce under existing conditions because they have no incentive. The pay of the average mechanic is small, too small, to make him take any interest other than in what is in his envelope on Saturday night. The price to the truck owner is unreasonable because he does not obtain full value for his money. Neither does the truck dealer. Mechanics can kill time and in this they are indirectly aided and abetted by the dealer.

Another factor contributing to unreasonable price is lack of properly arranged service station, machinery and equipment. The mechanic and shop cannot produce satisfactory work at satisfactory prices nor make any profit (unless the customer is overcharged) without the right tools and shop equipment. Too many truck service stations are conducting service with methods of 10 years ago, when it comes to shop equipment.

**Time.** This is so closely related to the unreasonable price that it cannot be divorced from it. How many truck dealers know what is a fair or average time for any given service operation? Not many. More must know and will be obliged to give more attention to service in the future if they are to continue in the truck industry.

**Profits.** "We do not expect to make any profit," and "We can't make any profit," are the general expressions of the truck dealers in connection with the service department. Too many express themselves as happy if the shop does not "Lose too much money," or if it breaks even. There are truck dealers who will argue that to make profit they would have to charge outrageous prices. The trouble with these dealers is that they think they can get by on selling new trucks alone and that service is like vaccination, compulsory during an epidemic.

\* This is the second of a series of articles on service by Mr. Shattuck, dealing with flat-rate and piece-work systems and selling service. The third will appear in an early issue.—Editor.

### What's Wrong With Service?

The surprising thing to the writer is that the truck dealer, generally speaking, will not pattern after the passenger car dealer who has found out that new car sales are predicated on satisfied customers. There is a passenger car dealer in the East who has taken his service manager out of the shop and placed him on the road to sell service and to keep car owners satisfied. This departure from conventional practice is resulting in new car sales from unexpected quarters. Why shouldn't the truck dealers do this? How many actually know why they did not get the repeat? **Price is not always the reason**, although the sales manager may credit price. Isn't it the maintenance costs which enter into the price of the truck eventually?

It is because of these factors that the dealers are urged to seriously consider the flat rate. It is the foundation not ultimate structure of service. It is the prelude to the piece-work system and piece work is not the ultimate. Already there is an improvement over piece work that again reduces the maintenance costs to the owner. But the piece work or more improved system cannot be placed in operation until the flat rate is worked out; that is to say, the principles underlying the flat rate.

The hourly rate had its inception in the pioneer days of the industry when the automobile was in the experimental stage and no one had any idea of how long it would take to do any given repair. Machinists were employed and being paid a weekly wage, the service charge was consequently based on the hourly rate. That was nearly a score of years ago. Service differs today because the units and components of the truck chassis are virtually standardized, and the time required for any given operation can readily be determined.

### Satisfactory Service Defined

One may have a neat service station, good mechanics and extend courtesy to the customer, but unless the trouble is properly diagnosed, correct price determined **in advance**, and delivery made on schedule time, the service will not be satisfactory notwithstanding all arguments to the contrary.

The time has arrived when every truck dealer must arrive at a selling price for his service, a price fair to the customer and equally fair to himself. The hour rate is wrong because some one must pay for the idle time of the mechanics. If the rate takes care for idle time the customer does not get a square deal, and if the dealer bears the brunt he isn't getting a square deal. Idle or non-productive time is very expensive to the dealer.

Sooner or later the truck dealer will regard service-labor as a commodity which he buys from the mechanic and sells to the customer. Labor is as much a staple as a pair of shoes. Labor is an investment for the truck dealer just as much as a chassis is an investment. The dealer knows the cost of the chassis, the tax, freight and other items, which, when added up, represent the cost. The manu-

facturer fixes the selling price or list, although it is not always observed. The difference between these costs (plus the overhead) and the sales price is the profit.

### Labor Has a Definite Cost

The same fundamentals must be applied to labor. It has a definite cost and must have a definite selling price, a figure that will care for the overhead and leave the dealer a reasonable profit. Determining the cost, overhead, selling price and profit is very simple if a few facts will be considered. But, there is too much guesswork in arriving at the selling price and too much copying the selling price of the competitor. John Jones up the street charges \$1.50 an hour, and Bill Smith, with the same overhead, etc., charges \$1.25 the hour. Jones may be losing money with his apparently high rate and Smith may be making a profit, but both pay the mechanics the same hourly rate.

Let us consider for a moment the independent shop. It cannot be denied that the independents are making deep inroads into the dealer's service business. Figures will substantiate that. If you are charging \$1.50 an hour and the independent \$1.25, the average truck owner thinks he is saving 25 cents per hour. He may be eventually paying more than \$1.50 an hour but he doesn't know it. It is possible that the independent with a rate of \$1.25 is giving your customer better work and prompter service, for the independent may have skilled mechanics, good machinery and up-to-date shop equipment and tools which make it possible cutting down the time required by your shop. And it is also possible that the independent knows cost, overhead, etc., for remember the independent service station must make a profit in service to remain in business for as a rule **he has no profits from truck sales** to carry his business along. It is also possible that eventually the independent may become a truck dealer on a small scale and **sell trucks to your customers who have gone to him for service.**

Also bear in mind that the head of the average independent service station **sells his product—LABOR**, and that many have taken up the flat rate and piece work, also that there is no reason why these independents cannot flat rate the service on the truck you sell. If this is done it will divert **more** customers from your service station, because no matter how you may regard the flat rate the owners like it because if for no other reason **they know what it will cost and when it will be ready** before any work is done.

If you believe the above statements are exaggerated check your list of customers, all owners of the make you represent in your territory, then check against your service station records and note what per cent still patronize your shop. It will be small. Why not go a step further and ascertain, as did the passenger car dealer referred to in this article, and know why they went elsewhere? If you spend the time to ascertain the real reason you may find that costs have much to do with it.

### Why Evade the Issue?

The truck dealer should know the truth about his service and regard it as a commodity having a cost, an overhead, a selling price and the possibility of a profit. The truth can be known and without any great expense if the dealer will seek for the truth. In his analysis, he will discover many leaks the greater number of which can be laid to his door. The writer believes that if the dealer will take the time to make this analysis it will result in many changes in his sales policies and also result in the improving the morale of the service station organization. The time is not far distant when the dealer who thinks he can get by with sales alone is due to a sad awakening. The passenger car dealer knows by experience that the profits on new car sales will not carry him through. The truck industry cannot improve on passenger car methods when they are based on sound business practices.

### A. A. A. Organizes Motor Truck Section

Co-operation between the National Automobile Chamber of Commerce and the American Automobile Association in the formation of a division of the A. A. A. for truck owners is assured by the endorsement given the proposition by the N. A. C. C. directors at their meeting in Buffalo recently.

Conferences have already been held between the N. A. C. C. Motor Truck Committee and executives of the A. A. A., both parties agreeing as to the necessity of a national organization of commercial vehicle owners. It was felt that the situation could be best met by expanding the scope of the A. A. A. by the inclusion of a separate division for truck users.

Now that the Chamber has officially decided to stand back of the A. A. A. in this, it is expected that President Thomas P. Henry of the A. A. A. will at once get busy in his preliminary plans which al-

ready are well formulated. It is felt that there is need of recognition of the truck interests in this manner and it is declared that the addition of several thousands of truck owners would strengthen the national organization. It is pointed out that considerable credit is due to the commercial vehicle in the advancement of the good roads cause and it is said that many a mile of improved highway has been laid because business demanded it.

The American Association of State Highway Officials, with headquarters in Washington, D. C., will hold its annual meeting in San Francisco on November 17-20. Among the major questions which will be taken up for consideration will be the Dowell bill, which failed in the last session of Congress, and which carried an appropriation of \$75,000,000 a year, for three years, for the national highway program, to be expended under the Federal-State aid plan.





## Our COMMERCIAL CAR JOURNAL-ISTS



# Answering the Prospect's "Won't Buy" Arguments

By FRANK H. WILLIAMS

**T**HE following questions are typical ones which the salesman has to answer frequently. There may be a thousand answers to some of these questions and all the cleverness in the world will not make some individuals buy a truck or change the buyer's mind if he really isn't in the market for a truck. Many times however the sale is lost because the salesman has no comeback. He doesn't know what to say. So he takes it for granted that the prospect is not ready to buy and takes a chance on selling him later. In the meantime the salesman of the competitor gets on the job and gets the order and the only reason he got it was because he was right there with the right kind of a sales argument.

### This is a Popular One

**Customer:** "You aren't offering me enough for the truck I've been using. My old truck is in good condition, it still does the work for me and if I can't get more for it on a trade than you are offering, I'll keep it and not get a new truck."

**Answer:** "We might offer you more money, perhaps, but we'd be losing money

on the deal because we couldn't resell your truck at enough to let us out on the proposition and we're not in business for our health any more than you are. We've got to make money on each deal or quit business entirely. Of course, you might get along with your old truck and not purchase a new one, but the longer you continue to use this truck the less value it is going to have. And, right now, it is right on the verge of needing a really tremendous amount of repair work.

That's the big reason why we can't allow you any more for it on a trade—it will take so much work to recondition it for selling. Also if you continue to use this old truck it may go all to pieces on you at some critical time and it may also give people the impression that your business isn't as prosperous as it might be. People often get the idea, when a man in your line of business continues using old, ramshackle trucks, that he isn't doing so very well. The deal we have offered you would give you a brand new truck at not too great an expenditure and the use of the new truck in your business would be such splendid advertising for you that you would easily get enough new business

in a short length of time to more than pay for the money involved in the deal."

### Cheaper to Hire a Truck

**Customer:** "My business at the present time isn't large enough to justify my purchasing a truck. It is much cheaper and better for me to hire some delivery company to do such truck work as is necessary. Later on, perhaps, I will buy a truck."

**Answer:** "That reason for not purchasing a truck is much like the old-time reason for not buying a home. The man who doesn't want to buy a home says that it is much cheaper for him to pay rent than to have his money invested in a home and pay the insurance and taxes and upkeep on it. But at the end of ten years of this sort of thing the man who doesn't buy a home has invested a great sum of money in rent and hasn't a single thing to show for it outside of his rent receipts; while the man who has decided to quit paying rent and who had bought a home on the installment plan has his home all paid for and hasn't been paying any more from month to month than the man who has been paying rent.

**T**HIS department is open to everyone for discussion on subjects relating to sales and service, or problems affecting the manufacturer, dealer, salesman or serviceman in the motor truck industry. Frank discussion and constructive criticism is encouraged. Suggestions for the improvement of conditions in the industry and ideas that will be of most benefit to all concerned are especially welcomed in this department.

**What's on Your Mind? Tell Us About It!**

"To keep on paying truck owners to do your delivering and hauling for you is to do just about the same thing as the man who feels that he'd rather pay rent than buy a home.

"The way to make your business grow is to be sure that every nickel you spend is going to bring you back some money. When you pay truck owners to do your delivering for you, you haven't a chance in the world of ever getting any of that money back. But if you put this money into a truck you'd soon have the truck paid for and you'd have something. Also you'd be ready for the big increase in your business which is bound to come, considering the way that your business has been going along recently."

**Customer:** "Your truck is a bigger truck than I need in my business."

**Answer:** "Three years ago if anyone had come to you and told you that in three years' time you would be putting up a splendid addition to your store building you'd have thought they were unduly optimistic, wouldn't you? But your store has caught on with the public and has gone over big and it is going over still bigger all the time. So, to say that you don't need as big a truck in your business is to limit the possibilities of your business rather arbitrarily.

It may be possible that, right at the present time, you don't need a truck of this size in your business but, it looks to a casual outsider like myself, as though it isn't going to be any time at all until you do need this truck. And when that time is here it isn't beyond the realms of possibility that you might find yourself caught short—you might find that you couldn't get a truck as soon as you needed it and you will also find that you had to pay a much higher price for the truck. The deal I'm offering you is a good one, your business is growing splendidly all the time and will grow even more rapidly when your new addition is opened, and this truck I'm trying to sell you is the logical thing for you to buy right now."

#### There Are a Few Like This

**Customer:** "I haven't the money to pay cash for the truck and I don't feel like buying it on the installment plan. It takes too long to pay for it that way and I've got too many obligations as it is. I'll admit that I need the truck, but I guess I'll struggle along with my present equipment for a while longer."

**Answer:** "Aren't any of the goods you handle ever sold on the installment plan? Isn't the installment plan the best sort of a proposition for a manufacturer, like yourself, in moving goods?"

"The installment plan allows a person to get what is needed when it is needed and thus do away with a lot of unnecessary annoyance and labor and trouble. It is the best method in the world of making a little money go a long way.

"I may be entirely wrong about the matter but it is my candid opinion that if you want to make your business hum along in the way that it should, you can't do better than purchase this truck on the installment plan. In this way you will get it now when you need it and that will mean just that much less worry for you. And you will be able to handle more business more quickly. And the installments that will be required on this purchase will be so comparatively small that you'll be able to handle them without any trouble at all. If the installment plan is a good thing for the purchasers of the goods you sell, it should also be a good thing for you in buying the goods you need."

### Have You Questions to be Answered?

Every salesman sometime or other comes across a customer who seems to be a "hard nut" to crack. We believe that if salesmen and dealers would tell us about their experience in such cases, the whole trade would be benefited. The interchange of such problems, through the medium of these columns would be helpful to all.

Tell us about some of the problems you are up against in your business or in your locality. Perhaps, we or some of our readers can give you a suggestion that will help you out of your difficulty.

**Customer:** "My business isn't big enough to justify me in purchasing a truck. Also, to be perfectly frank with you, I'm thinking of selling out—so that the purchase of a truck would simply be an added expenditure which wouldn't do me any good."

**Answer:** "You're giving me the best sort of reasons why you should buy a truck!"

"Stop and think about the situation in your business for a moment.

"You say that your business doesn't justify you in purchasing a truck because it isn't of sufficient volume. But, if you had a truck you could, undoubtedly, so expand your business that you would have all the volume you wanted.

"And, of course, if you had a greater volume of business you could, unquestionably, get more money from the purchaser of your business.

"So from every angle from which the proposition is viewed the purchase of a truck would be a splendid thing for you. If you buy a truck and start using it at once in your business you will, unquestionably, be able to get more money for your business than would otherwise be the case."

**Customer:** "I had one of your trucks once and they didn't give good service at all."

**Answer:** "That's one of the reasons why our trucks are so superior today—we saw their defects and remedied them at once. The best trucks are, quite often, those that started out poorly but which made up for defects quickly. Let me show you a few demonstrations. You'll then see for yourself at once that our truck is just about the best ever."

### Afraid of Competition

To the Editor:

We are at the present time handling a line of trucks from 2½ to 5 ton capacities. We feel like taking on a light delivery type of vehicle around ¾ to 1 ton, but hesitate to do so because we believe we will have a lot of competition on account

of two prominent makes in our territory, which seem to be pretty well established. In the event that we decide to take on a light truck which makes would you suggest as being the most satisfactory all around jobs?—J. W. B. Kalamazoo, Mich.

This publication cannot recommend any particular make of vehicle. For that purpose we would suggest that you carefully read the advertisements in the Commercial Car Journal and also make your own comparisons from the Specification Tables published in each issue of this publication.

As far as the competition is concerned, let us ask you this question? Haven't you any competition with your present line? Of course you have. If you hadn't any competition you wouldn't have any business at all. In any community and in any business where there is any activity apparent at all, there is also competition. That's what makes business.

The first thing you should do is to make a thorough analysis of your present list of customers and ascertain what percentage of them are using light trucks or have use for a light truck. Find out how many light trucks approximately there are in your territory. Then set a quota for yourself for the first year and take only as many trucks as you can actually sell at a profit. Rather underestimate than overestimate. Make it your business to sell them right. Most important of all—don't forget that you must handle the service on these trucks right from the beginning. Make arrangements with the factory to stock sufficient parts to take care of any possible contingency. If you start right you cannot help but make a success. Remember that last year's sales of light trucks amounted to ninety-two per cent of the total sales.



# BUSES WILL AGAIN BE FEATURED AT ELECTRIC RAILWAY SHOW

**Greater Demand for Exhibition Space This Year  
Than Ever Before Will Make This Event One of the  
Greatest in the Annals of the Association's Activities**

**P**RACTICALLY all of the larger motor bus and parts manufacturers whose products have become well-known among the bus operating interests of this country will be on hand with their exhibits at the American Electric Railway Association's Convention and Show, at Atlantic City, October 6 to 10th.

Two months before the show, the exhibit committee found itself overwhelmed with applications for space and they are still coming in. Mr. Fred C. J. Dell, Director of Exhibits, says that this is the first time in the history of the association that space requests had to be cut down. Approximately 64,000 sq. ft. of floor space will be available every inch of which will be occupied.

The list on this page gives the names of the companies that have already been assigned space. In going over this list one cannot help but notice that the automotive industry is unusually well represented. In fact there are over seventy of the exhibitors here given whose names and products are well known in the automotive industry.

So that our readers may know just what will be going on at this show, we have planned to run an advance review of the Show in the September issue of Com-

mercial Car Journal. Numerous interesting articles will also be published in the September issue of interest to all dealers and manufacturers who are at present selling motor buses or who contemplate entering this field.

## Partial List of Exhibitors

Air Reduction Sales Co.  
Alumino Thermic Corporation  
Aluminum Company of America  
American Abrasive Metals Company  
American Brake Shoe & Foundry Company  
The American Brass Company  
American Car and Foundry Company  
American Steel Wire Company  
Anaconda Copper Mining Company  
Albert & J. M. Anderson Mfg. Co.  
Ass'n of Mgrs. of Chilled Car Wheels

The Baldwin Locomotive Works  
The Beck Duplicator Company  
Berry Brothers  
Bethlehem Steel Company  
Bridgeport Brass Company  
J. G. Brill Company  
Brown-Lipe Gear Company  
The Buda Company

E. R. Caldwell & Son Brass Co., Inc.  
The Philip Carey Company  
Carnegie Steel Company  
Cheatham Electric Switching Device Co.  
Chicago North Shore & Milwaukee Railway  
Chicago Pneumatic Tool Company  
Chicago Rapid Transit Company  
Chillingworth Mfg. Company  
Chilton Company  
The Clark-Williams Engineering Co., Inc.  
The Cleveland Fare Box Company  
The Cleveland Pneumatic Tool Company

Barron G. Collier, Inc.  
Commonwealth Steel Company  
Consolidated Car Fender Company  
Consolidated Car Heating Co.  
Continental Motors Co.  
The Drew Electric & Mfg. Company  
The Duff Manufacturing Company  
Charles I. Earll  
The Eberhard Mfg. Co.  
Economy Electric Devices Company  
The O. M. Edwards Company, Inc.  
The Electric Railway Improvement Co.  
The Electric Railway Journal  
Electric Service Supplies Company  
Electric Traction  
The Ellico Company  
Fageol Motors Company

Galena-Signal Oil Company  
The Garford Motor Truck Company  
General Electric Company  
Globe Ticket Company  
W. S. Godwin Company, Inc.  
Gold Car Heating & Lighting Company  
Gould Coupler Company  
Graham Brothers  
Griffin Wheel Company

Hale-Kilburn Company  
Haskelite Manufacturing Corporation  
Heywood-Wakefield Company  
Hubbard & Company  
Hyatt Roller Bearing Company

Illinois Steel Company  
Ingersoll Rand Company  
International Harvester Company  
International Motor Company  
International Register Company  
International Steel Tie Company  
Irving Iron Works Company  
Irvington Varnish & Insulator Co.

The R. F. Johnston Paint Company

(Continued on page 62)



The Million Dollar Pier, Atlantic City, Where the Convention and Show Will Take Place

# ARE YOU ADVISING YOUR CUSTOMERS TO KEEP TRUCK COSTS?

*Tell Him About This System  
It Will Help You Sell Trucks*

ANY dealer who expects to build up his business must know the operating costs of his trucks in the hands of the owner. Your salesmen will make more calls and get more orders if they have actual performance figures to show. When you know what your trucks can actually save, you have something definite to talk about.

Furthermore, a cost system in the hands of the owner will give you

an opportunity to check up some customers who claim your trucks are expensive. It will stop the owner guessing at his costs. The system here described is exceedingly simple in operation.

The Motor Transport Standard Cost System comprises but two elements for each month—a set of Drivers' Route Cards, Figs. 2 and 3, one for each truck for each day of

## How Truck Costs Help the Fleet Owner

TRUCK costs are of value to fleet owners from three angles as follows:

1. To estimate the cost of truck haulage as compared with other methods of shipment or delivery.
2. To determine the rates to be charged when the truck is to be used in public haulage.
3. To compare the cost of operation of one truck with that of another of the same capacity, in the same class of work in the city or to determine if the cost of any one item of truck expense is excessive.

the month, and the Monthly Truck Cost Summary, Figs. 4 and 5. How these two elements work together

**Driver's Route Card**

Vehicle No. \_\_\_\_\_ Date \_\_\_\_\_ 19\_\_

Driver \_\_\_\_\_ Left Garage \_\_\_\_\_

Route No. \_\_\_\_\_ Returned \_\_\_\_\_

**TRIP LOG**

From	To	Time, Stops or Pkgs				Miles	TIME	
		Out	Del.	Pick up	In		Out	In
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
Totals								

**SUPPLIES**

Gal. Gas. \_\_\_\_\_

Kw.-hr. Current \_\_\_\_\_

Qts. Oil \_\_\_\_\_

Lbs. Grease \_\_\_\_\_

Qts. Ker. \_\_\_\_\_

Lbs. Waste \_\_\_\_\_

**WORKERS' TIME**

Driver \_\_\_\_\_

Helper (s) \_\_\_\_\_

Washer \_\_\_\_\_

Mechanic (s) \_\_\_\_\_

**MISCELLANEOUS**

Loading Delays \_\_\_\_\_

Traffic Delays \_\_\_\_\_

Accidents \_\_\_\_\_

Q. K. \_\_\_\_\_ Superintendent

**Motor Transport - Truck Cost System**

Month ending \_\_\_\_\_ 19\_\_

Make of truck \_\_\_\_\_ Gasoline \_\_\_\_\_ Electric \_\_\_\_\_

**Operating Charges**

Gasoline \_\_\_\_\_ gal. @ \_\_\_\_\_

Current \_\_\_\_\_ kw.-hr. @ \_\_\_\_\_

Oil \_\_\_\_\_ qts. @ \_\_\_\_\_

Grease \_\_\_\_\_ lbs. @ \_\_\_\_\_

Kerosene \_\_\_\_\_ gal. @ \_\_\_\_\_

Waste \_\_\_\_\_ lbs. @ \_\_\_\_\_

Dist. water \_\_\_\_\_ gal. @ \_\_\_\_\_

Helper \_\_\_\_\_ days @ \_\_\_\_\_

Mechanic \_\_\_\_\_ @ \_\_\_\_\_

A—Total operating charges \_\_\_\_\_

**Maintenance Charges**

Tires \_\_\_\_\_ miles @ \_\_\_\_\_

Repairs \_\_\_\_\_

Overhauling, painting, etc. \_\_\_\_\_

Spare vehicle rental \_\_\_\_\_

Garage rental (pro rata) \_\_\_\_\_

B—Total maintenance charges \_\_\_\_\_

**Fixed Charges**

Insurance, fire @ \_\_\_\_\_ per yr.

Liability @ \_\_\_\_\_ per yr.

Collision @ \_\_\_\_\_ per yr.

Interest @ \_\_\_\_\_ % (On item 1-12)

Depreciation on chassis @ \_\_\_\_\_ %

Depreciation on body @ \_\_\_\_\_ %

Depreciation on equipment @ \_\_\_\_\_ %

Depreciation on tires @ \_\_\_\_\_ %

\*Total taxes and licenses \_\_\_\_\_

C—Total fixed charges \_\_\_\_\_

\*Note: Omit one of these.

Fig. 1. How the Motor Transport Standard Cost System can be applied by any motor truck operator is shown on this chart. The system comprises two elements for each month—a set of Driver's Route Cards, one for each truck for each day of the month, and the Monthly Truck Cost Summary. The lines from form to form show where the data are obtained for the monthly cost summary. Above is shown a stack of the Driver's Route Cards. To the right, below the ledger belonging to the concern which operates the truck, is shown the Monthly Truck Cost Summary



to give the final result is shown at a glance in Fig. 1.

The general accounts of the concern are not interfered with by the **Motor Transport Standard Cost**

**System** in any way, and all general items on truck investment, overhead charges and expenses are kept in the ledger as usual. This system is intended to supplement the general

books, not to take their place; to give information which the books do not give and to present what they do give in a more accessible manner. The **Motor Transport Standard Cost System** is intended as a departmental report, not a bookkeeping system.

Bills, payments and collections on account of the motor trucks should be handled by the bookkeeper, as usual, and all information regarding expenses should be obtained from the ledger of the concern. In case it is the desire to keep the truck cost separate, however, although this course is not advised, all bills for truck expenses can be filed for reference by the person maintaining the truck accounts.

### Solely a Cost System

Income from truck operations does not enter into this system, since it is solely a cost system. Also, in many cases the income from the trucks is not direct or easily determined.

Deputization is essential to any well-regulated business. In using this system, it will be well to just have one person responsible for the upkeep of the system. He should have the binder system in his desk and the daily cards to be finally turned in to him.

Some one should have charge of the mechanical condition of the trucks. It should be his duty to O.K. the daily mechanical reports of the drivers each day to see that all troubles are reported.

One person should be responsible for the time of drivers, helpers, mechanics, washers, etc., and should see that the time spent is accurately entered on the cards each day.

### Easy to Operate

One person should be accountable for the supplies consumed by the trucks. He should see that these supplies are on hand and that anything that is used shall be duly entered on the card. For example, he should arrange for the accurate measurement of all gasoline which is put into the tanks and also that which is used for other purposes. This he may check with the supply purchased to check for errors, wasteage or purloining.

Definite responsibility should be placed somewhere for the mileage



**Motor Transport—Truck Cost System**

Number of Truck \_\_\_\_\_ Chassis No. \_\_\_\_\_

Capacity in lbs. \_\_\_\_\_

MONTHLY COST SUMMARY SHEET U. P. C. BOOK COMPANY, INC. 243-249 WEST 39th ST. NEW YORK

**Investment**

Cost of chassis, less tires \_\_\_\_\_

Cost of body \_\_\_\_\_

Cost of equipment \_\_\_\_\_

Cost of tires \_\_\_\_\_

Total cost, complete \_\_\_\_\_

**Performance Record**

1—Days operated \_\_\_\_\_

2—Days idle \_\_\_\_\_

3—Days maintained (Item 2 ÷ Item 1) \_\_\_\_\_

4—Total hours operated \_\_\_\_\_

5—Total miles covered \_\_\_\_\_

6—Total trips made \_\_\_\_\_

7—Total tons or packages or stops \_\_\_\_\_

**Performance Averages**

8—Average miles per day maintained (Item 5 ÷ Item 3) \_\_\_\_\_

9—Average miles per day operated (Item 5 ÷ Item 2) \_\_\_\_\_

10—Average miles per trip (Item 5 ÷ Item 6) \_\_\_\_\_

11—Average tons, stops or packages per trip (Item 7 ÷ Item 6) \_\_\_\_\_

12—Average commercial ton-miles, package-miles or stop-miles per trip (Item 11 × Item 10) \_\_\_\_\_

**Recapitulation**

13—Total expenses for month (Sum of Items A, B and C) \_\_\_\_\_

14—Cost per day operated (Item 13 ÷ Item 2) \_\_\_\_\_

15—Cost per day maintained (Item 13 ÷ Item 3) \_\_\_\_\_

16—Cost per mile operated (Item 13 ÷ Item 5) \_\_\_\_\_

17—Total commercial ton-miles, package-miles or stop-miles (Item 7 × Item 11) \_\_\_\_\_

18—Cost per commercial ton-mile, package-mile or stop-mile (Item 13 ÷ Item 17) \_\_\_\_\_

**THE FINAL RESULT**

MOTOR TRANSPORT, Truck Cost System  
(Formerly the COMMERCIAL VEHICLE)

### Driver's Route Card

Vehicle No. 97 Date 4/19 1924  
 Driver Viggiano Left Garage 7:45 - 7:46  
 Route No. 7 Returned 8:00 7:503

TRIP LOG									
From	To	Tons, Stops or Pkgs.				Miles		Time	
		Out	Del.	Pick-ups	In	Out	In	Out	In
1	86	125	70	65	20	25	20	8:20	2:00
2	86	125	84	80	4	20	8:30	7:45	
3									
4									
5									
6									
7									
8									
9									
10									
Totals									

<b>SUPPLIES</b> Gal. Gas. _____ Kw.-hr. Current _____ Qts. Oil _____ Lbs. Grease _____ Qts. Kerosene _____ Lbs. Waste _____	<b>WORKER'S TIME</b> Driver <u>10:44</u> Helper(s) <u>10:44</u> Washer <u>1 hr.</u> Mechanic(s) _____	<b>MISCELLANEOUS</b> Loading Delays _____ Traffic Delays _____ Accidents _____
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O. K. Dick Smith Superintendent

Fig. 2. The driver fills out this card, which is checked by the superintendent

and tonnage performance of the vehicles. This person should personally inspect the speedometers or odometers to check up the reported mileage and compare the reports on tons or packages delivered with the records of the shipping room to determine their accuracy.

How easily the Motor Transport Standard Cost System determines commercial ton-mile costs, package-mile costs, or costs based on the stop-mile is at once apparent by following through how one of the readers of Motor Transport uses the system.

#### How It Works

Arnold Constable and Co. is one of the larger retail stores of New York, employing 21 light trucks for its city and suburban package deliveries. One of these trucks is a Dodge which travels 25 to 30 miles per day, delivering about 100 packages.

Each morning the driver of this truck receives a Driver's Route Card, upon the back of which is printed a Driver's Mechanical Report (Figs. 2 and 3), in exchange for filled-out cards.

When the driver leaves the garage he fills in his card with his name, the number of the truck and the date. The garage manager fills in the time of departure.

Arriving at the store, he and his

MOTOR TRANSPORT, Truck Cost System  
(Formerly the COMMERCIAL VEHICLE)

### Driver's Mechanical Report

Check each part on this list. Repairman will correct all troubles reported hereon.

<b>MOTOR</b> Ignition ✓ Carburetor ✓ Cooling ✓ Lubrication ✓ Valves ✓ Governor ✓ Power ✓ Knock ✓ Compression ✓ Missing ✓  <b>TRANSMISSION</b> Clutch ✓ Gears ✓ Universal ✓ Jackshaft ✓ Differential ✓ Chains ✓  <b>BRAKES</b> Foot Brakes ✓ Hand Brakes ✓  <b>STEERING GEAR</b> Gears ✓ Tie-rods ✓ Front Axle ✓	<b>MISCELLANEOUS</b> Wheels ✓ Springs ✓ Frame ✓ Radius Rods ✓ Torque Arm ✓ Radiator ✓ Fan ✓ Fan Belt ✓ Batteries ✓ Controller (Elec. Vch.) ✓ Motor Controls ✓ Pedals ✓ Levers ✓ Windshield ✓ Lamps ✓ Speedometer ✓ Fenders ✓ Cab ✓ Body ✓  <b>TIRES</b> Left, front ✓ Right, front ✓ Left, rear ✓ Right, rear <u>Deflate</u>
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Key: ✓—Performance O. K. A—Adjust. R—Repair.  
 Repairs and adjustments made, O. K. Dick Smith

Fig. 3. After the driver fills out this mechanical report, the mechanic checks it

helper load the truck with the packages to be delivered, and receive the shipping clerk's instructions. Under "out" on his route card the driver marks the number of packages to be delivered. Upon returning to

Under mileage is included the distance from the garage to the store as well as the trip mileage.

As the route over which this driver operates has a large number of stops with many packages to be delivered, only one trip per day is generally made, at the end of which the driver returns to the garage.

Before putting up the truck for the night, he carefully checks over the list of parts on his Driver's Mechanical Report, which is printed on the reverse side of his Driver's Route Card (Fig. 3). He places a check-mark opposite all the parts which in his judgment are performing properly. If, for example, he finds that his engine has been overheated several times during the day, he will place a letter "A" in the space opposite "Cooling." Or if his fan-belt breaks, he will place a letter "R" opposite "Fan-belt" in the second column. If there are any other points which have given trouble, and which are not on the list, he writes their names and the proper notation on one or more of the blank lines at the bottom of the page. The card is hung on a hook in the cab, and the driver is then through for the day.

#### Simple Records

When the garage attendants are ready to fill the tanks and clean and polish the truck, the gallons of gasoline put in the tank are noted on the card and also the quarts of oil. If any kerosene is used to fill the lamps or for other purposes, the amount used is marked on the card, as well as grease and waste. The washer inserts the time spent on the truck in the proper blank and the card is turned over to the garage manager by the driver the following morning.

When the garage mechanic makes his rounds of inspection in the evening, he takes down the card and reads the Driver's Mechanical Report. If he finds nothing but check marks, he is content with a brief inspection of the truck.

If an "A" appears opposite any part, he proceeds at once to inspect it carefully and to put it into proper shape, if possible. If not, he makes a notation to that effect and resumes work at the first opportunity. The same applies to an "R."

If, in his subsequent inspection, he finds some part out of order, but

#### What a Motor Truck Cost System Should Do

1. Show the actual average cost per day, per mile, per ton, per commercial ton-mile, package-mile, stop-mile or other unit-mile according to the desire of the owner.
2. Show the tire mileage and the cost of tires per mile.
3. Show the gasoline consumption per mile and the cost of fuel per mile.
4. Show the cost of repairs per mile over any given period.
5. Show the total time worked, the time lost in operation due to delays in loading, traffic or other tie-ups, or while in the shop for repairs.

the store at the end of the trip he notes the number of packages actually delivered, the number picked up en route, and the number with which he returned to the store.



checked as O.K., he places a mark of his own opposite it and calls it to the attention of either the garage manager or the driver. When he has finished with the truck, he signs the card.

When the garage manager receives the filled-out card in the morning, giving the driver a new one in exchange, he goes over it, makes any corrections that are necessary, and turns it over to the timekeeper. The timekeeper notes the time of the driver and the card is then sent to the office of the delivery superintendent.

At the end of the month the delivery superintendent takes the complete set of cards for each truck and calculates the totals.

It is in making these calculations that the exceeding simplicity of the system becomes apparent. The gallons of gasoline, quarts of oil, pounds of waste and grease, etc., are taken directly from the cards and entered in their proper places as shown in Fig. 4.

From the memorandum or ledger the delivery superintendent notes the prices for the supplies and rates of pay opposite these figures and

then he computes the cost of each item.

The cost of tire mileage is obtained by dividing the cost of the tires by the guaranteed mileage, or

**T**HE complete Motor Transport Standard Cost System—500 Drivers' Daily Route Cards, 60 Monthly Summary Sheets, an Information Booklet and a Trussell Ring Binder—costs only \$9.50, post-paid. Write for sample sheets, cards, and full details. Motor Transport System Dept., Chilton Co., Chestnut and 56th Sts., Philadelphia, Pa.

1.0875 cents per mile. From the bills for repairs from his own garage, and from the Dodge service station, he derives the total cost of repairs to the truck, which was \$4.53. Garage rental amounted to \$20.

Annual insurance premiums for fire, liability, and collision is divided

by 12 to get the monthly rate. Depreciation on chassis and body is written off on a five year life basis, or 20 per cent per year.

Although some companies include interest on their investment among their fixed charges, Arnold Constable and Co. does not do so.

Totaling the three groups of cost charges, the grand total is figured and entered under item 14, giving \$340.21 as the total money cost.

After items 2 to 8, inclusive, have been filled in from the driver's cards the performance averages are figured, and the cost per package-mile or the cost of carrying one package one mile, is calculated by simply filling in each item as directed on the summary sheet. The result, or item 19, Fig. 5, is \$.0085 per package-mile. If simply the cost per package is desired, item 14 is divided by item 8, which gives \$.1218.

With these accurate cost figures the manager of this company knows what he is getting for his money.

With this Motor Transport Standard Cost System, any truck owner can just as easily find out what his ton-mile, package-mile, or other truck costs are.

CHILTON CO. PUBLISHERS  
Commercial Car Journal  
Motor Transport

**Motor Transport—Truck Cost System**  
Sold Only by CHILTON COMPANY, Chestnut and 56th Sts., Philadelphia, Pa.  
Month ending April 30, 1924  
Make of truck Dodge  
Only 2 Forms Used in This Standard Cost System "A Simple Method"

Monthly Cost Summary Sheet

Operating Charges		
Gasoline <u>122 1/2</u> gals.	@ <u>24</u>	\$ <u>29.40</u>
Oil <u>6</u> qts.	@ <u>18</u>	<u>1.08</u>
Grease <u>6 1/2</u> lbs.	@ <u>12</u>	<u>.78</u>
Kerosene _____	@ _____	
Waste _____	@ _____	
Dis. Water _____	@ _____	
Tires <u>2</u> tires @ <u>1.34</u>		<u>2.68</u>
Driver <u>26</u> hrs @ <u>5.00</u>		<u>130.00</u>
Helper <u>26</u> hrs @ <u>2.66</u>		<u>69.16</u>
Washer <u>23</u> hrs @ <u>.40</u>		<u>9.20</u>
Mechanic <u>10 3/4</u> hrs @ <u>1.00</u>		<u>10.75</u>
<b>A—Total Operating Charges</b>		<b>\$ <u>263.05</u></b>
Maintenance Charges		
*Tires <u>803</u> miles @ <u>.010875</u>		\$ <u>8.73</u>
Repairs _____		<u>4.53</u>
Overhauling, painting, etc. _____		
Spare vehicle rental _____		
Garage rental (pro rata) _____		<u>20.00</u>
<b>B—Total maintenance charges</b>		<b>\$ <u>33.26</u></b>
Fixed Charges		
Insurance, fire @ <u>5.90</u> per year		\$ <u>49.00</u>
Liability @ <u>2.64</u> per year		<u>22.44</u>
Collision @ <u>21.60</u> per year		<u>180.00</u>
Interest @ _____ % (On Item 14-12)		
Depreciation on chassis @ _____ %		
Depreciation on body @ <u>20</u> %		<u>16.92</u>
Depreciation on equipment @ _____ %		
*Depreciation on tires @ _____ %		
Total taxes and licenses _____		
<b>C—Total fixed charges</b>		<b>\$ <u>43.90</u></b>

\*Note: Omit one of these.

Fig. 4. Itemized cost statement, as filled out for Arnold Constable and Company, New York City

CHILTON CO. PUBLISHERS  
Commercial Car Journal  
Motor Transport

**Motor Transport—Truck Cost System**  
Sold Only by CHILTON COMPANY, Chestnut and 56th Sts., Philadelphia, Pa.  
Number of Truck 97  
Capacity in lbs. 1500  
Chassis No. \_\_\_\_\_  
Only 2 Forms Used in This Standard Cost System "A Simple Method"

Monthly Cost Summary Sheet

Investment		
Cost of chassis, less tires		\$ <u>1015.20</u>
Cost of body		
Cost of equipment		
Cost of tires		<u>108.75</u>
<b>1—Total cost, complete</b>		<b>\$ <u>1123.95</u></b>
Performance Record		
2—Days operated <u>26</u>		
3—Days idle <u>4</u>		
4—Days maintained (Item 2—Item 3) <u>30</u>		
5—Total hours operated _____		
6—Total miles covered <u>803</u>		
7—Total trips made <u>28</u>		
8—Total <del>ton-mile</del> packages or stops <u>2792</u>		
Performance Averages		
9—Average miles per day maintained (Item 6—Item 4)		<u>26.76</u>
10—Average miles per day operated (Item 6—Item 2)		<u>30.88</u>
11—Average miles per trip (Item 6—Item 7)		<u>28.67</u>
12—Average <del>ton-mile</del> packages or stops per trip (Item 8—Item 7)		<u>99.7</u>
13—Average <del>commercial ton-mile</del> package-miles or stops per trip (Item 11 x Item 12)		<u>1429.20</u>
Recapitulation		
14—Total expenses for month (Sum of Items A, B and C)		\$ <u>340.21</u>
15—Cost per day operated (Item 14—Item 2)		<u>13.08 1/2</u>
16—Cost per day maintained (Item 14—Item 4)		<u>11.34</u>
17—Cost per mile operated (Item 14—Item 6)		<u>42 1/3</u>
18—Total <del>commercial ton-mile</del> package-miles or stops (Item 7 x Item 13)		<u>40,017.6</u>
19—Cost per <del>commercial ton-mile</del> package-mile or stop-mile (Item 14—Item 18)		\$ <u>.0085</u>

Fig. 5. Investment memorandum, performance record, efficiency and cost calculations completed

# A Garage Built Exclusively for Commercial Vehicles

One of the Largest Garages in the Country  
Can Accommodate 350 Commercial Trucks

**T**HE new C-T Garage recently completed in Philadelphia by the Commercial Truck Service Corporation represents the last word in commercial vehicle garages. The building was designed to take the heaviest, the highest and the largest commercial vehicles built, and its construction is made heavy enough so that if it were entirely filled with trucks of 26,000 lbs. weight (the maximum weight allowed by the Pennsylvania State Law) there would still be a sufficient factor of safety.

The garage, of steel and concrete construction throughout, is absolutely fire-proof, being completely equipped with overhead sprinkler system. It is equipped with every modern facility for servicing all types of electric and gasoline motor vehicles. The building consists of three stories and basement; the first two floors and basement being used for garaging the trucks and the third floor having a series of repair shops. The roof is also utilized for storage purposes. The basement and second floor are connected with the first floor by means of easy grade ramps and a large capacity elevator serves all floors and the roof.

There is a clear height of 12 ft. 6 in. on each floor with the exception of the third floor which has a height of 15 ft. The elevator is 15 ft. 6 in. high and has capacity of 26,000 lbs. It is of the automatic self-leveling type. Each floor measures 159 ft. x 172 ft. and, in all, the floor space amounts to 135,000 sq. ft. Thus, in floor area, it is perhaps the largest commercial garage in the country.

The total capacity of the building amounts to 350 cars and so great is the demand for garaging space for commercial vehicles, that the garage already is nearly filled to capacity. Of the large number of trucks now housed in the garage, between sixty and seventy are electric trucks.

Facilities are provided for the charging and repairing of electric trucks and servicing of electric vehicle storage batteries. One of the features of the garage is its 24 hour repair service, so that trucks can be repaired during the night; thus keeping them in service continually. The third floor is entirely given over to repair service, where a large machine shop, a

system, ladies' rest rooms and chauffeurs' club rooms.

Accessibility, convenience and appearance have not been sacrificed in building this garage; in fact, special attention was given to these points in laying out the garage and before the site was finally decided upon. Location plays an important part in the success of a garage devoted exclusively to commercial vehicles.

Before the location of this garage was determined upon, a careful survey was made of the city and the location of commercial vehicles plotted, in order to ascertain the center of population of the vehicles. When this point was determined, the nearest available site was searched for and, finally secured, practically at the exact center of population. The garage is located at the corner of Franklin and Vine Streets, directly facing Franklin Square, Philadelphia.

It is bounded on three sides by important traffic streets and extends nearly to another main

traffic street on the fourth side. This gives it unusual accessibility.

Many prominent Philadelphia concerns are now housing their entire fleets in the new garage and in some cases it has been found to be the only garage, because of its high ceilings and entrances, capable of taking the trucks of these companies.

In this way the garage has recently become the official storage place for a number of transport trucks plying between New York and Philadelphia. When whole fleets are garaged in the building, adjoining stalls are given over to each truck fleet; thus the fleet is kept all together in one section.

This is a convenience that is much appreciated by fleet owners for it gives them the advantage of a private garage without the expense and trouble of maintaining such a garage.



The C-T Garage, Franklin and Vine Streets, Philadelphia

wood working plant, forging shop and battery department can take care of any kind of overhauling and repair service speedily and at minimum cost. So complete are the repair shops, equipped as they are with modern machinery driven by electrical power, that an entire truck can be rebuilt, if necessary.

In addition to the regular shop equipment for this repair work the garage is equipped with the following power driven machinery: Jointer, double arbor revolving saw, band saw, grinders, small sensitive drill presses, engine lathes, moulders, mortiser, planer, drills, hack saws and forging hammer.

Overhead shafting is eliminated by equipping each of these machines with individual motor drives.

Other notable features of the C-T Garage are the retail accessory stores, gasoline pumping stations, package checking



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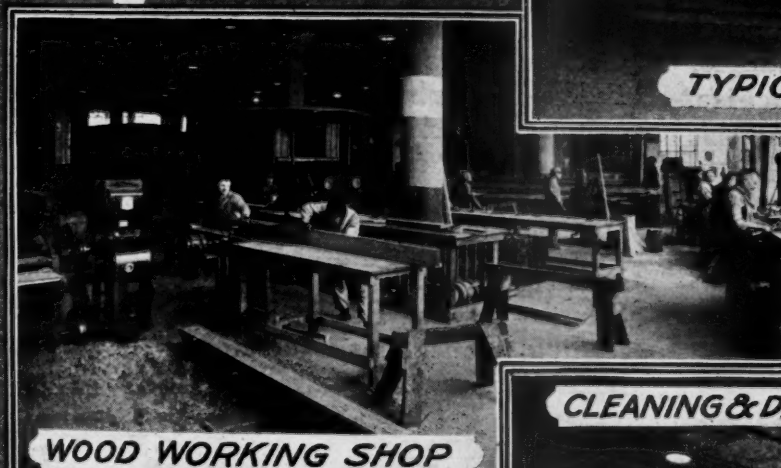
**BATTERY DEPARTMENT**



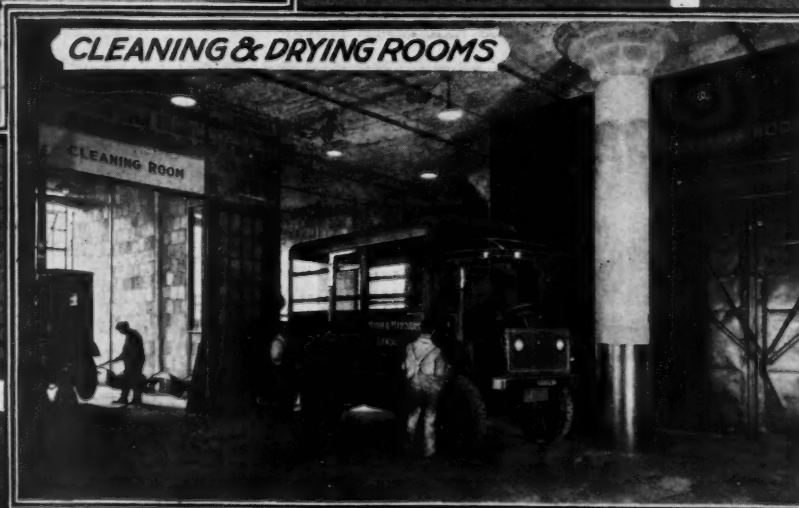
**FORGE SHOP**



**TYPICAL FLOOR VIEW**



**WOOD WORKING SHOP**



**CLEANING & DRYING ROOMS**



## A SPEEDY TRUCK \$1095

QUICK SALES AND PROFITS  
FOR LIVE TRUCK DEALERS

**WILLYS-KNIGHT MOTOR**

Chassis f. o. b. Detroit

Dealers everywhere are writing for the Federal-Knight franchise. Truck users are demanding this newer, better high-speed truck.

Every Grocer, Baker, Druggist, Hardware Man, Shoe Dealer, Department Store and other light delivery truck users in your territory is a live prospect *right now!*

Get your share of this profitable Federal-Knight business. Sell the *only* motor truck in the world with *the engine that improves with use*. No valves to grind—no carbon-cleaning. Upkeep costs cut 50%.

Federal-Knight advertising in the Saturday Evening Post and other leading publications is creating business for *you* to close.

Valuable territory still open. Write **TODAY** for full particulars of the Federal-Knight franchise in *your* territory.

**FEDERAL MOTOR TRUCK COMPANY**  
DETROIT, MICHIGAN

# FEDERAL-KNIGHT

## A SPEEDY BUSINESS TRUCK





# EDITORIALS



## What's the Price?

**P**LACING any commodity on the market without a definite knowledge as to its actual worth indicates a lack of business judgment. Some times prices are made arbitrarily to find out what the public will pay. If the public buys, and feels that it has gotten its money's worth, the manufacturer may consider himself lucky. Competition, however, may change his luck. There are numerous commodities on the market which are sold in small packages which are labeled conspicuously with the price tag. Most of the standard goods sold by the clothing merchant, the hardware man, the grocer and so on, are sold at a definite price, known to all. The same is true of machinery, tools, pianos, furniture and other merchandise that runs into larger figures.

Why then should the motor truck manufacturer hesitate to publish the price of his product? There are lots of reasons, of course, the main one being that certain kinds of competition can be met more effectively with a flexible price list. Unfortunately such practices do not beget the confidence of the purchaser. He feels that he is being stung no matter what he pays. The manufacturer who hesitates to put a definite figure on his product is only helping his dealers to become poor business men, both financially and ethically. Most of the trading practices can be laid on the doorstep of the manufacturer. Unless he has established definite policies and prices, how can he expect the dealer to live up to any?

## Cities Must Pay Sales Tax

**A**CASE of interest to motor truck dealers is the recent decision handed down by the Appellate Division of the Supreme Court in New York state, which maintains the right of a plaintiff to hold the city to its contract, and establishes a precedent in cases of this kind.

In this instance the Packard Motor Car Co., of New York sold to the municipality at a specified price, four motor trucks. The manufacturer had paid the tax according to the requirements of the Federal Revenue Act, and made the tax part of its cost price payable by the consumer. But the city had a policy which requires automotive merchants to deduct the tax from the sales prices which policy has been adopted by many other municipalities throughout the country.

Suit was brought by the Packard Company of New York against the city to recover the full contract price. The Supreme Court, decided against the city, which appealed. The Appellate Division then handed down a decision sustaining Packard's contention in every particular.

This case furnishes a conclusive precedent. It will require municipalities to pay the tax just the same as the private purchaser, which is no more than just. As long as manufacturers are passing the tax along to the ultimate consumer, there's no reason why cities and municipalities should be given any special consideration.

## Making Hay While the Sun Shines

**I**T'S been pretty hot in most parts of the country the past month so that many dealers are reluctant to get right down to brass tacks these days and figure on what they are going to do next winter. The cold days seem a long ways off, but not too far away to do some planning for the fall and winter months.

For instance, now is the time to get busy planning for a line of winter equipment, such as cabs, heaters, anti-skid chains, windshield wipers, anti-freeze compounds, special lubricating oil, etc. Of course there are some dealers who may have reasons for not handling such equipment but the majority have no legitimate excuse for not handling it. It's mainly a question as to whether or not the dealer really wants to make his business more profitable.

The service department should get busy at this time planning for overhauling and repair work on trucks which are required to do exceptional duty during the holiday season. In many lines the owners could afford to lay up some of their trucks now for a thorough overhaul, rather than wait for the cold weather to set in.

The service station could also start an early campaign on having brakes relined and adjusted.

In fact many service stations could make their cash registers do more business if they impressed their customers more forcibly on the necessity of having the brakes on their trucks in good shape all the time. The dealer who will systematically follow up his customers on this matter ought not only make a decent profit out of it, but it's a good way of keeping in contact with customers.

# News of the Trade

## Motor Truck Industries Show Open to Non-Members

THE transportation show to be held by Motor Truck Industries, Inc., October 21 to 27 in the American Exposition Palace on Lake Shore Drive, Chicago, is open to non-members as well as members of the association.

This is the first national truck show in the history of the industry and interest in the event is very keen. In previous years truck manufacturers have been forced to exhibit in connection with automobile builders and in such shows interest centered around the passenger cars.

Truck parts and equipment, accessories and special service equipment will be displayed as will buses, rail cars, trailers and all types of commercial motor vehicles.

Since this exhibit is intended to be of real practical value to truck and fleet owners the general public is not invited. Admission will be by invitation. A daily demonstration program is being prepared by Wm. N. Hallanger, manager of Motor Truck Industries. These tests will be conducted on a large ground area adjoining the exposition building. Various makes of trucks will be out through their paces and every type of commercial trucking condition will be demonstrated.

According to Mr. Hallanger, "an extensive campaign is under way among automobile and truck dealers, fleet owners and owners of bus lines urging them to attend the show. Those who have already been notified have evinced a very lively interest.

"We feel that those who attend will learn a great many valuable lessons and that the show will react very favorably toward those manufacturers who exhibit. The show is not intended to amuse but is to be of real practical value to men interested in motor truck transportation."

## Plan Come-Back for Triangle Truck

Plans to place the Triangle Truck Co., of St. Johns, Mich., back into operation are being made, the matter being subject, however, to the formation of a sales company which would take over the entire output of the company. The sales company if it is formed will have a capital of \$50,000 and will maintain headquarters in Lansing.

Men behind the formation of the sales company are L. R. Brown of Lansing, a former executive of Republic Truck Co., Frank Stinebower and A. H. Burke both of St. Johns.

Generally improved conditions in the truck field are declared to be responsible for the movement to revive the Triangle Company. The company and its trucks enjoyed good business during and for a time after the war but was closed down in the depression following. The manufacturing company is reported to have all necessary finances.

## U. S. Government to Spend \$72,759,375 on Roads

A total of \$4.70 for each passenger car, truck and motorcycle is to be expended by the Federal government on good roads during the fiscal year ending June 30, 1925. This is 15 cents less per automotive unit than the amount spent during the fiscal year which ended on June 30th.

Apportionment of the Federal-aid funds, recently announced by the U. S. Bureau of Public Roads show that exclusive of administrative cost the Federal government will spend \$72,759,375 on its highway Federal-aid program, or approximately ten million more than was spent for the fiscal year ending June 30, 1924, when a total of \$63,375,000 was paid out.

## Good Business Ahead for Truck Industry

Prospects for truck business in the eastern and southwestern states are extremely bright for the fall months, reports O. W. Hayes, president of Republic Motor Truck Co., who has just returned from a trip through that section on which he was accompanied by E. E. Sieg, general sales manager.

Opinions by truck men, business men and bankers throughout this section were that sound business conditions and a generally rising movement in all lines of industry would require the use of increased number of commercial cars. This new business will be reflected immediately at the truck factories, Mr. Hayes declares, as dealers have been handling their business on a very conservative basis and are entering this seasonal buying period with very low stocks.

## Moline Iron Works Reports Good Year

At the annual meeting of the stockholders of the Moline Iron Works, Moline, Ill., detailed reports were read indicating that the year ending June 30, 1924, was the biggest in the past history of the malleable iron foundries, as there was a good demand all through the year.

The directors for the ensuing year were elected as follows: Wm. Butterworth, L. H. Dorman, Sol Hirsch, J. T. Miles, D. E. Miles, L. E. Nutt, B. V. Nutt, M. C. Nutt, C. R. Rosborough. The following officers were elected: President, L. E. Nutt; vice-president, B. V. Nutt and M. C. Nutt; treasurer, J. T. Miles; secretary, L. H. Dorman.

The outlook for business for the coming year is reported to be exceptionally good as the constantly increasing price of grain and all farm products will undoubtedly be reflected in general improvement in all lines of industry.

## Parts Makers Approve "Trade Days" at National Shows

So well has the plan been received to devote the first two days of the national shows to the trade exclusively, that already there is talk of adapting the same scheme to the local show circuit. While the local shows would not afford the same mark for equipment manufacturers as will the national events, it is felt that a day devoted to the dealers exclusively would prove a paying investment, particularly in the case of such cities as Cleveland, Boston, Cincinnati, Minneapolis, Kansas City and others in that class. In such cases, it is figured, the show proper could open to the public in the evening, after a day given over for dealer conferences and inspection of new models of cars and accessories.

The innovation seems to have made a particular hit with the parts makers, for since Neal Adair, show manager of the Motor and Accessory Manufacturer Association broadcast the information to members he has received a literal flood of commendatory telegrams and letters from them. With few exceptions, all reactions have been favorable.

Among those expressing themselves enthusiastically are G. Brewer Griffin, manager of the automotive division of the Westinghouse Electric & Manufacturing Co. and also president of the M. A. M. A.; E. H. Broadwell, vice-president of the Fisk Rubber Co.; H. L. Horning, Waukesha Motor Co., W. T. Morris, vice-president of the American Chain Co.; Christian Girl, president of the C. G. Spring & Bumper Co.; George W. Yeoman, president of the Continental Motors Corp.; F. A. Hiter, vice-president and general manager of the Bassick Manufacturing Co.; V. A. Collamore, Atwater Kent Manufacturing Co.; W. J. Zucker, secretary of the Stewart-Warner Speedometer Corp.; W. S. Isherwood, sales manager of the AC Spark Plug Co.; John F. Galvin, Jr., president of the Metal Stamping Co.; W. C. Stettinius, president and general manager of the American Hammered Piston Ring Co.; B. M. Asch, president of Asch & Co.; V. W. Dow, manager of distribution of the John Warren Watson Co.; Frank L. Campbell, general sales manager of the United States Chain & Forging Co.; W. B. Ericson, general sales manager of the Biflex Products Co.; John P. Mahoney, sales manager of the Buda Co.; and C. W. Pelton, president and general manager of the Perfection Heater & Manufacturing Co.

In the opinion of Show Manager Adair of the M. A. M. A., a general effort may be made to make the exhibits at the national shows of greater educational and informative value. Both the M. A. M. A. and the N. A. C. C. are planning to cooperate in laying a special emphasis on the enhanced value of the exhibits because of the plan for the trade days.



## Haynes Re-elected President of Dodge Brothers

Officers and directors of Dodge Brothers, Inc., were re-elected for the year at the annual meeting with the exception of Howard B. Bloomer, chairman of the board, who has retired. The office of chairman was abolished by passage of a resolution, and the place on the directorate was filled by the election of Russell Huff, chief engineer. Stock in Dodge Brothers is held exclusively by the Dodge family, except for voting stock held by directors.

The officers of the company are Fred J. Haynes, president and general manager; A. T. Waterfall, vice-president; John Ballentyne, treasurer; Harry V. Popeney, secretary and assistant treasurer, and R. J. Fry, assistant secretary.

The retirement of Mr. Bloomer who was for years personal counsel to the Dodge Brothers and general company counsel is due principally to illness from which he has been suffering for a number of years. On the death of Horace E. Dodge, Mr. Bloomer became chairman of the board of the company, and perfected the system of organization under which it now operates.

The election of Mr. Huff to the directorate is in recognition of his long and efficient service as chief engineer of the company, and of his high standing in the engineering field generally. He has been chief engineer with Dodge Brothers for nearly ten years, is a former president of the Society of Automotive Engineers, and is one of the pioneer designers of the industry.

According to a statement issued at the meeting, the past fiscal year was the largest in Dodge Brothers' history. Business in the first six months of 1924 was larger than in any similar period in point of deliveries to retail purchasers.

## C. A. Musselman President of The Class Journal Company

C. A. Musselman has been elected president of The Class Journal Co., succeeding the late Horace M. Swetland. Mr. Musselman formerly was vice-president and general manager and also is president of the Chilton Co. of Philadelphia.

Other officers elected were: A. B. Swetland, vice-president and manager; W. I. Ralph, vice-president; E. M. Corey, treasurer; Harry Tipper, secretary.

## Bower Bearing Personnel Changes

Illness of R. F. Bower, who has been inactive for the past year, has caused a change in the personnel of the Bower Roller Bearing Co., of Detroit. C. H. Heller, one of the original incorporators and secretary since the company's inception, being elected president. George W. Mearick has been named vice-president, Theodore C. Dye, secretary and treasurer; W. S. Bennett assistant secretary and E. M. Pratt assistant treasurer.

# COMING EVENTS

## CONVENTIONS

**American Electric Railway Assn.**—43rd annual convention to be held October 6 to 10, 1924, at Young's Million Dollar Pier, Atlantic City, N. J. Also a display of electric cars, buses and accessories. James W. Welsh, exec. sec., 8 W. Fortieth St., New York City.

**American Gear Manufacturers Assn.**—Midsummer meeting to be held at Briarcliff Lodge, Briarcliff Manor, N. Y., from October 16 to 18, 1924.

**American Road Builders Assn.**—Convention and road show to be held January 6 to 9, 1925, at the Coliseum, Chicago. Chas. M. Upham, director, State Highway Commission, Raleigh, N. C.

**American Society for Steel Treating**—6th annual convention to be held September 22 to 26, 1924, at Boston, Mass. Also a Steel Exhibition.

**Automotive Electric Assn.**—Annual meeting to be held September 8 to 11, 1924, at White Sulphur Springs, W. Va. Earl Turner, Mgr., 5363 Hamilton Ave., N. E., Cleveland, Ohio.

**California Automobile Trade Assn.**—Annual meeting to be held in October, 1924. Date and place to be announced later. R. W. Martland, Mgr., Oakland, Cal.

**Iowa Automotive Merchants Assn.**—Annual meeting to be held November 13 and 14, 1924, at Des Moines, Iowa. A. J. Knapp, Sec.-Mgr.

**Michigan Automotive Trade Assn.**—18th annual convention to be held in Detroit, Mich., January 21, 1925. W. D. Edendurn, Mgr., Hotel Addison, Detroit.

**Motor & Accessory Manufacturers Assn.**—Annual convention to be held at Cleveland, October 6 to 8, 1924. M. L. Heminway, Gen. Mgr.

**National Hardware Assn.**—30th annual convention to be held at Hotel Marlborough-Blenheim, Atlantic City, N. J., from October 14 to 17, 1924. The Automobile Accessories Branch will hold its meeting on October 13, at Hotel Shelburne. T. James Fernley, Sec., 505 Arch St., Philadelphia.

**National Safety Council**—13th annual safety congress to be held September 29 to October 3, 1924, Louisville, Ky. W. H. Cameron, managing director.

**National Standard Parts Assn.**—Meeting to be held week of November 10th (tentative), 1924, at Chicago.

**National Tire Dealers Assn.**—Annual convention to be held November 18 to 20, 1924. Hosts: Akron Retail Tire & Accessory Dealers Assn.

**Pennsylvania Automotive Assn.**—Annual convention to be held October 17 and 18, 1924, Wilkes-Barre, Pa. R. C. Duffus, Mgr., 302 Security Bldg., Harrisburg, Pa.

**Texas Automotive Dealers Assn.**—Annual convention to be held in March, 1925, at Austin, Texas. W. A. Williams, Mgr., San Antonio.

## SHOWS

**Athens, Pa., September 15 to 20, 1924**—3rd annual automobile show to be held in conjunction with the Inter-State Fair. Passenger cars, trucks, tractors, and automotive equipment. Chas. E. Miller, Mgr.

**Boston, Mass., October 10 to 17, 1925**—World's Rubber and Tropical Exposition will be held at Mechanic's Hall. Chester I. Campbell, Mgr.

**Chicago, Ill., October 21 to 27, 1924**—National Transportation Show to be held at the American Exposition Palace under the auspices of Motor Truck Industries, Inc. Capital Bldg., 120 Madison Ave., Detroit. Delivery systems, omnibuses, bodies, trailers, etc. Wm. N. Hallanger, Gen. Mgr.

**Dallas, Texas, October 11 to 26, 1924**—Annual auto show will be held on the Fair Grounds under the auspices of the Dallas Automotive Trade Assn.

**Detroit, Mich., January 17 to 24, 1925**—24th annual show to be held at Convention Hall, under the auspices of the Detroit Auto Dealers Association. Passenger cars, trucks and automotive supplies. H. H. Shuart, Mgr.

**El Paso, Texas, September 20 to 25, 1924**—Annual auto show to be held on Exposition Grounds, under the auspices of the Auto Department of the International Fair Association. W. J. Wile and E. C. Held, General Chairmen.

**Grand Rapids, Mich., September 15 to 19, 1924**—9th annual automobile show to be held in conjunction with the West Michigan State Fair, at the Automobile Exhibition building, and on the Fair Grounds. Passenger cars, trucks, tractors and automotive equipment. Wm. T. Morrissey, Mgr., 220 Ashton Bldg.

**Green Bay, Wis., August 25 to 30, 1924**—4th annual show of the Automotive Division of the Green Bay Association of Commerce, Automotive Bldg., Northeastern Wisconsin Fair Grounds (300,000 sq. ft.). Passenger cars, trucks, accessories, sport and auto apparel. W. E. Kerwin, Mgr., Bellin Bldg.

**Indianapolis, Ind., September 1 to 5, 1924**—Automobile show to be held in conjunction with the Indiana State Fair on the fair grounds. Passenger cars, trucks, tractors, etc. John Orman, Mgr.

**Little Rock, Ark., October 6 to 11, 1924**—Annual show to be held in connection with the Arkansas State Fair. Passenger cars, trucks, tractors and automotive equipment. L. E. Whitman, Pres. Little Rock Auto Dealers Assn.

**Newark, N. J., January 10 to 17, 1925**—18th Annual Automobile Show to be held at the 113th Infantry Armory (30,000 sq. ft.), under the auspices of the Newark Automobile Dealers. Passenger cars, trucks and automotive equipment. Claude E. Holgate, Mgr., Chamber of Commerce Bldg.

**Oklahoma City, Okla., September 20 to 27, 1924**—Annual show to be held in conjunction with the Oklahoma State Fair and Exposition at Automobile Bldg. (approx. 23,375 sq. ft.). Passenger cars and automotive equipment; trucks and tractors, outside space. W. H. Birdseye, Mgr., P. O. Box 974.

**Sacramento, Cal., August 30 to September 7, 1924**—70th annual California State Fair, under auspices State Board of Agriculture. Tent, 100 x 350. Passenger cars. Trucks, tractors and accessories in other tents. C. W. Paine, Sec.

**Shreveport, La., October 30 to November 9, 1924**—Annual auto show to be held in connection with the State Fair of Louisiana. Passenger cars, trucks, tractors and automotive equipment. W. R. Hirsch, Sec.-Mgr.

**Toronto, Canada, August 23 to September 6, 1924**—National Automobile Show to be held in conjunction with the Canadian National Exhibition under the sanction of the Canadian Automotive Equipment Assn. and the Automotive Industries of Canada. Gib Robertson, Sec.

**Wheeling, W. Va., September 1 to 6, 1924**—10th automobile show to be held in conjunction with the West Virginia State Fair, at the Exposition Bldg. Passenger cars, trucks, tractors and automotive equipment. Bert H. Swartz, Sec., P. O. Box 116.

**White River Junction, Vermont, September 9 to 12, 1924**—Automobile show to be held in connection with the Twin State Fair (13,600 sq. ft. of space). Passenger cars, trucks, tractors, automotive equipment, etc. Fred L. Davis, Sec.

**Wilmington, Del., September 9 to 13, 1924**—Automobile show to be held in conjunction with the Delaware State Fair. Passenger cars and automotive equipment; trucks and tractors will be displayed in tents. Lewis P. Randall, Sec. & Gen. Mgr.

## N. A. D. A. MEETINGS

**January 5, 1925**—Convention in connection with a show, at Hotel Commodore, New York City.

**January 29 and 30, 1925**—8th annual convention to be held at Hotel La Salle, Chicago. Lynn M. Shaw, Asst. Gen. Mgr., 320 N. Grand Ave., St. Louis, Mo.

## N. A. C. C. MEETINGS

**October 21 to 24, 1924**—Production meeting at Detroit, Mich.

**November 18 and 19, 1924**—Joint service meeting with the S. A. E. to be held at Cleveland, Ohio.

## S. A. E. MEETINGS

**September 24 and 25, 1924**—Automotive Transportation Meeting at New York City.

**October 22 to 24, 1924**—Production Meeting at Detroit, Mich.

**November 18 and 19, 1924**—Service Engineering Meeting at Cleveland, Ohio.

**January 8, 1925**—Annual Dinner to be held at New York City.

**January 20 to 23, 1925**—Annual Convention at Detroit, Mich.

**January 21, 1925**—Annual Carnival scheduled for Detroit, Mich.

## Good Roads Show Plans Well Advanced

THE 1925 Road Show and Convention of the American Road Builders' Association will be held at Chicago, January 5 to 9, inclusive. C. M. Upham, business director of the Association, announces that much better arrangements have been made for both the show and convention than in any previous years. The preliminary plans are further advanced than has been the case in the past. Every indication therefore is that these two big annual events in the road building industry will in every way eclipse all past records.

Prof. T. R. Agg will be chairman of the program committee. Professor Agg has had such a variety of experience in the highway field that he will be able to produce a well balanced program of general interest. The convention sessions will be held at the Congress Hotel.

Nearly 17,000 sq. ft. of additional floor space suitable for heavy exhibits will be provided at the Coliseum. This additional space is being obtained by the extension of the Coliseum to the north. The present main building and the adjoining building which have been used in the past also will be available. There will thus be room for more and better exhibits.

Additional doors for bringing in the heavy exhibits also have been arranged. Plenty of time to get the exhibits into the buildings further will be allowed by the schedules made possible by the dates of the show. These improved arrangements coupled with the wonderful success of the last two road shows insure the largest and best industrial machinery exposition ever seen in this country.

Application blanks for space in the Road Show will be mailed shortly by Mr. Upham to all concerns whose names are available. Blanks may be obtained by addressing him at 37 West 39th Street, New York City.

Committees are being formed to handle the annual banquet, hotel arrangements, registration and various other features. The plans for these features, as well as for the show and convention, will all be arranged long in advance of what has been customary in previous years. With greater interest in highway building than ever before, the attendance from all parts of the country thus is certain to break the remarkable records of the last show and convention.

## Prest-O-Lite Announces Battery Price Reductions

The Prest-O-Lite Company, Inc., has just announced from its general offices at Speedway, Indianapolis, Indiana, what is termed the most sweeping scale of price reduction ever instituted in the battery business. To indicate the extent of the revision, the 6 Volt II Plate full capacity battery which formerly retailed at \$20.50 now sells for \$14.65. At this price the battery will be furnished in either wood or rubber box just as the customer prefers.

The product furnished under the new price arrangement will be the same standard Prest-O-Lite with a number of refinements which are designed to add greatly to the service delivered by the battery.

The new prices have been made possible by recent developments in manufacturing methods and further perfection of distribution. For considerable time plans have been under development by the Prest-O-Lite laboratories and sales organization to accomplish the change.

## Assets of Standard Show Big Shrinkage

Proceeds from the sale of all of the assets of the Standard Parts Co. will not be sufficient to pay off the creditors and consequently there will be nothing left for the stockholders, is the report made by Receiver Frank A. Scott.

The report covers the operations of the receiver from the beginning of the receivership, Sept. 1, 1920 to June 18, 1924, and shows a marked shrinkage in the value of the assets from the original book value. At the beginning of the receivership the assets totaled more than \$29,000,000 while the liabilities, exclusive of issued capital stock, were \$10,331,000 with a deficit at the time of \$1,946,000. As of June 18, 1924, listed assets totaled \$5,352,242, and liabilities \$2,397,526.

This shrinkage is attributed to inability to sell certain properties profitably and the original listing of good will at \$5,500,000 and patents and licenses at \$630,000. The reduction of \$23,733,865 in assets is summarized as follows by the receiver: Reduction in liabilities by cash payment and adjustments, \$7,933,721; shrinkage in assets by adjustments, depreciation, liquidation, etc., \$14,456,810; and reduction in good will by reason of cancellation of capital stock, \$1,343,333.

## Bus Purchase by St. Louis Trolley Line Off

According to an announcement made by John A. Ritchie, president of the Omnibus Company of America, the proposal to sell the People's Motorbus Co. to the Reorganization Committee of the United Railways Co. for \$2,400,000 is definitely declared off. The American Omnibus Co. is the holding company for the bus lines in operation in St. Louis.

Mr. Ritchie said that J. K. Newman who is directing the reorganization work of the United Railways was unable to go through with his part. "No attempt will be made to renew negotiations for the sale of the bus lines to the United Railways," stated Mr. Ritchie, "but if the city felt that a consolidated transportation service was necessary the bus company would agree to sell to the street railway owners for the price heretofore agreed upon. This agreement would be allowed to stand for six months."

## Permanent Electric Truck Exhibit

In view of the increasing importance of electric trucks for frequent-stop city delivery routes, The New York Edison Company has set aside a portion of their new showroom at 270 Canal Street, New York City for a permanent display of electric trucks, charging boards and batteries. The location of this showroom is an excellent one being at the mouth of the New Jersey and New York Vehicular tunnel, on the main thoroughfare for all traffic from New Jersey and Brooklyn.

In the Philippine Islands for the first three months of 1924, the truck situation showed improvement. Stocks have been reduced and used trucks which formerly lay idle have been brought into service. The demand is largely for light model trucks from 1 to 1½ tons. Last 346 trucks were exported from this country to the Philippines.

U. S. Department of Commerce Production Figures  
(Number of Machines)

	Passenger Cars			Trucks		
	1922	1923	1924	1922	1923	1924
January	81,696	223,822	*287,353	9,596	19,732	28,922
February	109,171	254,782	*336,374	13,360	22,173	31,151
March	152,962	319,789	*348,356	20,036	35,284	*34,109
April	197,224	344,661	*337,045	22,665	38,085	*36,154
May	232,462	350,460	279,439	24,120	43,730	33,374
June	263,053	*337,442	217,927	26,354	41,173	27,863
July	225,103	*297,413	.....	22,083	30,692	.....
August	249,498	*314,431	.....	24,711	30,872	.....
September	187,711	*298,964	.....	19,495	28,578	.....
October	217,582	*335,041	.....	21,824	30,139	.....
November	215,362	*284,939	.....	21,967	28,073	.....
December	208,016	*275,472	.....	20,394	27,762	.....

The International Motor Company's factories at Plainfield and New Brunswick, N. J., and at Allentown, Pa., are being kept busy filling orders for both their city and inter-city type buses. Mr. Hauer, manager of the Bus Department, reports deliveries for the first six months of 1924 to be four times greater than those made during the same period of the preceding year. He stated that the Allentown factory is working on a production schedule of two hundred 25-passenger city type bodies needed to deliver against unfilled orders now on their books.



## McCord May Abandon Russel Axle Making

The liquidation of the Russel motor axle plant by the McCord Radiator & Manufacturing Co., as advertised in Detroit, is declared by the company to represent at this time principally a surplus equipment sale with a possibility that the company will quit the motor axle field and devote the Russel plant to other manufacturing purposes.

Service on truck axles now in use will be maintained by the company for five years in any eventuality.

Original plans of the company were to sell the Russel plant as a going axle concern. This was later reconsidered, and it was thought to sell off the equipment and retain the plant for other manufacturing purposes. This last plan is now under consideration, so that the plant may be considered as an axle plant but with changes in equipment.

## Briggs & Stratton Company is Reincorporated

The Briggs & Stratton Co., manufacturer of electric switches, coils and other electrical devices for the automotive industries, has reincorporated under the laws of Delaware as the Briggs & Stratton Corp. The capital stock consists of \$400,000 first preferred, 6 per cent; \$300,000 second preferred, 7 per cent, and 10,000 shares of common stock without par value.

A Wisconsin charter has been granted, and the application stated that the proportion of capital employed in Wisconsin is \$775,000. The officers of the new corporation are identical with those of the old Wisconsin corporation, Stephen F. Briggs is president; Charles F. Coughlin, vice-president, and E. Bodendorfer, secretary.

## Selden in Friendly Receivership

Judge John R. Hazel, in Federal Court in Buffalo recently appointed Arthur S. More, of Rochester, receiver in equity action brought by the Continental Motors Corp., of Richmond, Va., against the Seldon Motor Truck Corp., of Rochester.

The balance sheet of the Seldon Corp. showed liabilities of \$1,792,134.40 of which amount about \$400,000 is secured and assets of \$2,018,679.91. The complainant alleges that certain creditors are threatening suits against the Seldon Corp., and that if a receiver is appointed, this will be prevented. The defendant agrees in this.

Speaking of the naming of the receiver, Mr. More said: "This is the first step in a complete reorganization of the company's affairs and will permit of the continuance of the business established in Rochester some 12 years ago."

"The petition filed at Buffalo shows the assets considerably greater than the liabilities and recites that the action is taken to protect the creditors and stockholders from any unfriendly action."

## Pan American Road Organization Seen as Result of Tour

WITH a complete picture of highway transport conditions in the United States as a background for their action, delegates to the Pan American Highway Commission are sailing for their respective countries this week after organizing the Pan American Confederation for Highway Education, and formulating a tentative program for the first Pan American Highway Congress to be held in Buenos Aires next spring.

In each of the nineteen Latin American nations represented on the tour will be formed a "Federacion Nacional de Educacion Vial," a body patterned after the Highway Education Board of the United States, the parent organization. These "Federacions" are united in the Pan American Confederation for Highway Education. In the opinion of those participating in its organization there is thus formed an international organization destined to have a far-reaching effect upon transportation facilities of the American continent, and a foundation upon which the structure of continued friendly relations can be even more firmly established.

The organization of the Confederation was the final official act of the delegates, who previously had submitted to Dr. Leo S. Rowe, director general of the Pan American Union, a tentative program for the first Pan American Highway Congress. Dr. Rowe, Thomas H. MacDonald, chief of the U. S. Bureau of Public Roads; J. Walter Drake, assistant

secretary of the Department of Commerce, and other high government officials express the opinion that the entire trip of the Commission has resulted in a great stimulus to highway transport activities, both in this country and in those represented by delegates.

The commission closed its work in this country with a series of conferences in Washington, after traveling more than 4,000 miles in ten states, inspecting the highways of North Carolina, Kentucky, Illinois, Minnesota, Wisconsin, Michigan, Ohio, New York, Pennsylvania, and New Jersey. Fully half of the mileage covered was by automobile or motor bus, while the tour itself was marked by expressions of the most cordial sentiments by officials and the public at large for the Latin American nations represented. The tour was under the auspices of the Highway Education Board, of which Dr. J. J. Tigert, United States Commissioner of Education, is chairman. It lasted thirty-one days.

Fifty-five persons comprised the official party, thirty-seven of them being representatives of nineteen Latin American nations. Under a committee on arrangements consisting of Roy D. Chapin, chairman; Fred I. Kent and W. A. Beatty, the direction of the trip was given to S. T. Henry, of New York, who has had much experience in Latin American affairs, and who also has wide business and personal contacts in this country.

## Capital Increased by Oshkosh Truck

To facilitate an increase in production to meet a steadily growing demand, which so far this year is nearly twice as large as in the first half of 1923, the stockholders of the Oshkosh Motor Truck Co. have voted to increase the working capital by \$200,000, nearly all of which was subscribed at the same time.

The concern has developed a large business with municipalities and the large percentage of repeat orders from this source is mainly responsible for the unanimous decision of stockholders to effect immediate expansion of production.

## A. E. S. A. Metropolitan Section Outing

The Metropolitan section of the A. E. S. A. will hold its first outing on September 14 at the Mt. Royal Gardens at Morristown, N. J. The chairman of the committee of arrangements, P. J. Oppenheim, will have buses to meet the out of town members and guests at the Newark railroad terminal and return transportation will be supplied. An excellent sports program has been arranged. The outing will not be a stag affair.

## New Truck With Passenger Car Engine

Announcement is expected to be made within a short time of an agreement between a prominent car manufacturer and a truck maker for the production of a new light truck using the engine of the passenger car builder. Negotiations have been under way for some time and are nearing the point where they will assume definite form. With this announcement made, it will find one more prominent car maker having truck affiliations at least insofar as sale of manufactured units is concerned. Practically all passenger car builders in the Detroit district, except in the higher priced lines, now have made connections of this kind or are building and merchandising trucks themselves.

The Tuthill Spring Company, manufacturers of Titanic Springs is building a supplement to its Chicago plant designed especially to facilitate the production of small lots. It will be their purpose to give unparalleled quick service on "one only," "obsoletes," etc., which it would be unwise for any jobber or manufacturer to carry in stock but which are very important to the dealer or owner. It is intended to make same-day shipments the rule insofar as that is physically possible.



**Alfred Kauffmann**  
Newly elected President Link-Belt Company

Lee Anderson, and Warner N. Jenkins, Jr., have been appointed vice-presidents of MacManus, Inc., advertising counsel, Detroit, in addition to Arden Yinkey, who has been vice-president since the organization of the present company in 1916. These, together with Theodore F. MacManus and Eugene J. Steiner, comprise the list of the company's officers.

Ezra W. Clark, advertising manager of the Clark Equipment Co., Buchanan, Mich., has recently been elected to the presidency of the Engineering Advertisers Association.

John R. Coleman, formerly production manager of the Selden Motor Truck Company, Rochester, New York, will on August first become Chicago manager of the Rubber Ace Corp., headquarters at 1000 S. Michigan Ave., Chicago, manufacturers of pneumatic puncture-proof inner tires.

A. V. Comings, formerly editor of the Automobile Trade Journal, who has succeeded Neal G. Adair as editor of Motor World, will also take up the duties of secretary-treasurer of the National Association of Automobile Show and Association Managers, which Mr. Adair resigned on joining the staff of the Motor and Accessory Manufacturers Association.

T. F. Cullen, who was for five years editor of the Automobile Trade Journal, has been engaged by the Michigan State Automobile School, Detroit, as special instructor in business. A thorough business course is being conducted by the school, and is offered as an additional free service to all of its students. The course covers business management, garage management, systems, accounting, advertising, salesmanship as related to the automotive service shop, and kindred subjects. One feature of it is an explanation of the flat-rate system of repair charges.

William A. Durgin, who for two and a half years has been at the head of the Division of Simplified Practice of the Department of Commerce, has left his government activity to resume his former post with the Commonwealth Edison Company of Chicago, from which he was borrowed by Secretary of Commerce Hoover when the latter established the Division of Simplified Practice to help industry eliminate waste through the reduction of excess varieties. He is being succeeded by Ray M. Hudson, who has been assistant chief of the division since it was created. Mr. Hudson, before coming into the division, was for some years connected with the automotive industry and was formerly with the Franklin Automobile Company of Syracuse, N. Y., and later with the Holt Manufacturing Co., of Peoria, Ill.

## Link-Belt Personnel Changes

Changes in personnel of the Link-Belt Co. have been brought about through the acquisition of additional plants and a considerable extension of its lines and business. The chairman of the board has been made the chief executive officer of the company and an executive committee of four created to act in an advisory capacity to the officers.

This has resulted in the election of Charles Piez as chairman of the board and chairman of the executive committee, while the other three members selected were Alfred Kauffmann, who also was elected president of the company; Staunton B. Peck, senior vice-president, and Thomas B. Marston, a member of the board of directors.

Mr. Kauffmann will have general direction and supervision of operations and sales. Mr. Peck will be in charge of sales and operations in the eastern district; Arthur C. Johnson, elected second vice-president, will remain in charge of the western district, while Humphrey J. Kiely, newly elected third vice-president, continues in charge of exports and sales in the New York district.



**Charles Piez**  
Chairman of the Board and of the Executive Committee, Link-Belt Company

Alden L. McMurtry, one of the founder members of the Society of Automotive Engineers, whose membership dates back to 1905, died at his home in Greenwich, Conn., after a long illness, aged 48. Major McMurtry was a member of the S. A. E. Standards Committee for years, specializing on headlights. Traffic control also was a hobby of his and as chief inspector of the Connecticut Motor Vehicle Department, he was largely responsible for the admirable code now in effect in that state.

W. L. Rowe, for more than 10 years associated with General Motors and Durant interests in a manufacturing and supervisory capacity, has severed his connection with Durant Motors, Inc., to organize the firm of W. L. Rowe, Inc., which will be located in the Fisk building, New York City. The organization will be special representative of several accessory and parts manufacturers.

J. H. Simons has recently been appointed district manager for the Lee Tire & Rubber Co. in recognition of his outstanding success as branch manager in Kansas City. He will have a large section of the mid-west and south under his jurisdiction, including Nebraska, Iowa, Oklahoma, Texas and Arkansas as well as the states of Missouri and Kansas. Lee branches in Kansas City, Omaha, Des Moines, Ft. Worth, Oklahoma City and San Antonio are now under Simons' direct supervision.

Charles M. Upham, State Highway Engineer of North Carolina, has been appointed director of the Advisory Board on Highway Research of the National Research Council, Washington, D. C. He succeeds Dr. W. K. Hatt who resigned in order to resume his work at Purdue University. Mr. Upham, the new director, has had extensive experience in highway work. For the past two years he has been business director of the American Road Builders' Association and has been re-elected several times to his present position as secretary of the American Association of State Highway Officials.

J. C. Weed, who was formerly connected with the Chilton Co., as Detroit representative, has recently joined the Commerce Motor Truck Co., of Ypsilanti, Mich., as director of sales and advertising. Mr. Weed's past connections have brought him into very close contact with the problems of the manufacturer and the dealer, so that he brings into this organization a fund of knowledge which will be of inestimable value in the marketing and development of commerce specially designed haulage units for particular industries.

## Personal Items

P. K. Hexter announces his resignation as general sales manager of the Selden Truck Corporation, Rochester, N. Y. Mr. Hexter will devote his attention to his private interests. His office address is 1457 Broadway, New York, N. Y., Room 616.

F. H. Johnson has been appointed advertising manager of the Ternstedt Manufacturing Co., succeeding R. M. Miller, who resigned recently.

E. A. (Ned) Kelley, for many years associated with the Splittorf Electrical Company, has been advanced to the position of the Director of Branches and will have charge of all Splittorf branch and distributor sales and service with headquarters at the factory, Newark, N. J. Mr. Kelley is known throughout the automotive trade by reason of his activities in behalf of his company. Successively on the Pacific Coast, in Chicago and as factory representative in Detroit. Mr. Kelley brings to his newer and larger responsibilities great experience and executive ability.



**J. C. Weed**  
Director of Sales and Advertising Commerce Motor Truck Co.



# Federal Announces the Knight Speed Truck

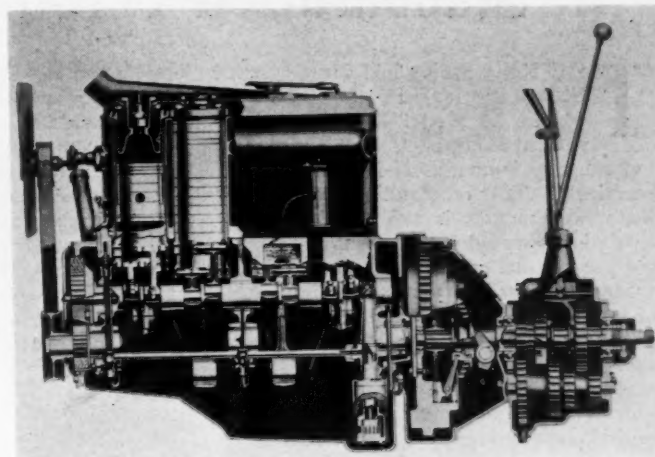
**F**EDERAL Motor Truck Co., of Detroit, through its president, M. L. Pulcher, officially announces the production of the Federal-Knight, a speedy business truck, at a chassis list price of \$1095.

The new truck is the result of the friendly association of Mr. Pulcher, one of the pioneers in the motor truck industry, with John N. Willys, president of the Willys-Overland Company, producer of the popular Willys-Knight engine.

Because of the success achieved by the Willys-Knight, both in passenger and commercial use, Mr. Pulcher and Mr. Willys have long maintained that there is a place in commercial transportation for the sleeve-valve type of engine, due to its operating economies.

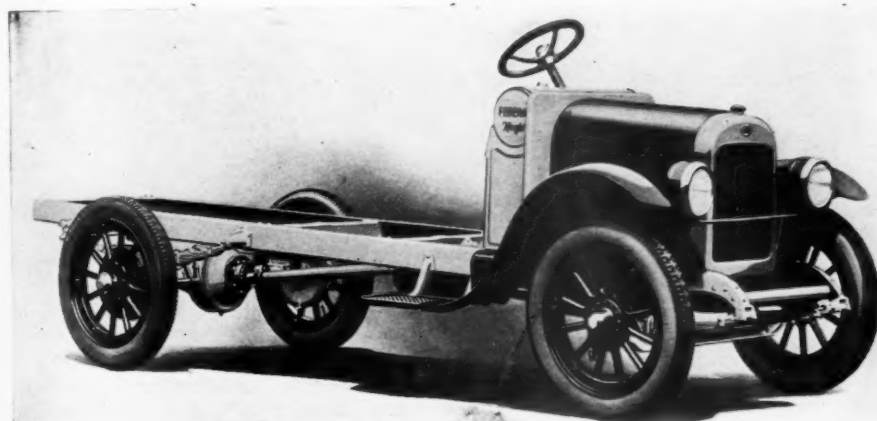
## Views of the Federal-Knight Speed Truck.

Capacity 1500 to 2000 lbs., 124 in. wheelbase; large braking capacity; long springs front and rear.



allowance of 750 pounds is made for the body. Battery ignition, electric generator, starter, horn, electric head and tail lamps are included in the equipment. The chassis is also equipped with the Alemite system of lubrication.

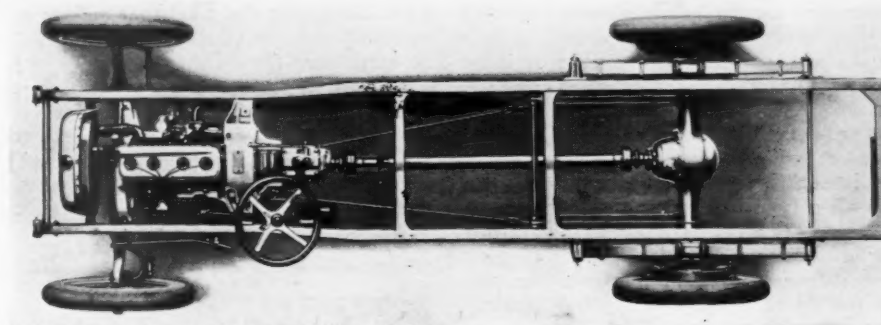
Other important units include bevel gear rear axle, special Federal transmission unit with engine, selective sliding gears, three forward and one reverse; 10-inch dry plate clutch completely enclosed in bell housing; Zenith carburetor; vertical tube radiator; 15½ x 2½ in. service and emergency brakes on rear wheels; frame is a pressed steel channel five in. deep, 5/16 in. thick and 30½ in. wide in front and 34 in. wide at rear; top of frame 24 in. above the ground in front and 27



In the new Federal-Knight Mr. Pulcher states "that he has finally realized a desire of many years to build a light truck to run 50,000 miles without the need of overhauling and that would fit the needs of thousands of users who desire motor transportation at lowest operating cost."

Willys-Knight engines differ radically in design from the poppet valve types of internal combustion gasoline engines in that poppet valves are replaced by sliding valves. Two cylindrically-shaped sleeves, fitting one within the other glide up and down within a film of oil.

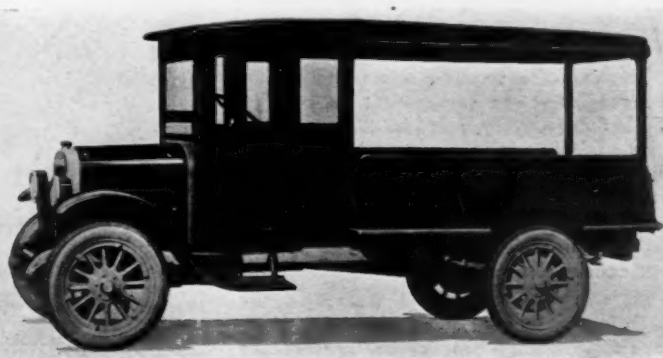
In these sleeves are openings or ports. As the sleeves slide by each other these openings are brought opposite each other at the proper moment, forming large passages for the intake and exhaust gases. Because of this construction the exhaust port



is absolutely closed when the intake is open and vice versa.

The capacity of the new Federal-Knight is 1500 to 2000 pounds, exclusive of body weight, with a wheelbase of 124 in. An

in. in the rear; steering gear of irreversible worm and wheel type with an 18 in. steering wheel; 23 ft. turning radius; and springs of semi-elliptic type, 38 in. long in front and 50 in. long in the rear.



## New Kelly-Springfield Models Standardized Throughout

**T**HE Kelly-Springfield Motor Truck Co., of Springfield, Ohio, has replaced its Model K-380 and K-39 with newer models of the same 2½ ton capacity known as K-76 and K-75 respectively. The outstanding features of the newer models is the standardization of design throughout the entire chassis, the use of smaller size bolts and bushings wherever possible and the elimination of practically all rights and lefts in parts. Not only does this lessen the production cost and speed up production, but it also simplifies the parts stock problem to a great extent and reduces the amount of capital invested in parts by nearly 50 per cent.

The K-75 which replaces the K-39 overhead drive and the K-76 which replaces the K-380 worm drive are complete new designs throughout. The greatest change is in the location of the radiator which is in front of the engine instead of at the rear. All the other models of the Kelly-Springfield line, however, still retain the radiator in front of the dash.

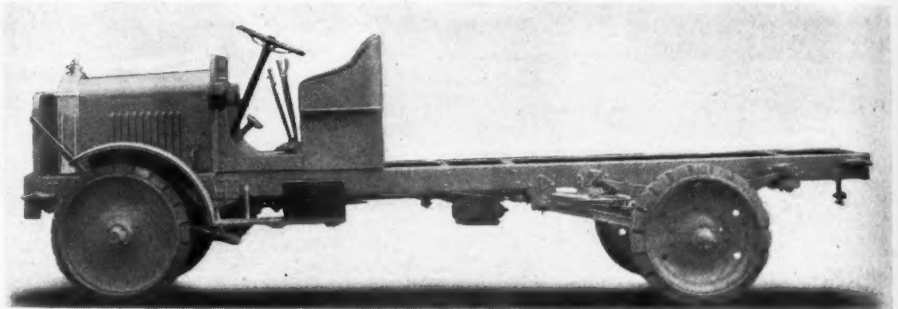
The new models have larger four-speed transmissions of 5-7 pitch gears and also larger driveshaft universal joints. The engine sizes on the new models are 4½ x 5½ in. four cylinders giving a piston displacement of 312 cu. in., 28.9 h. p. rating.

With the exception of the radiator side panel there are no right and left castings on the truck. The frame is perfectly straight, 7 in. deep with 3 in. side flanges and ¼ in. stock. The stampings are, therefore, exactly alike. There are six cross members in the standard length trucks and seven in the long wheelbase truck. The cross member stampings are all alike. The top and bottom flange of the cross members are enlarged to form a gusset while the face of the cross member is bent around at the end forming a flap all of which forms a riveting area of generous proportions. The four front spring brackets are identical. The four rear spring brackets are also alike and the two front spring shackles and the four rear shackles are identical. This is accomplished by making the front spring 3 in. wide, the same as the rear spring. The spring pins are 1½ in. in diameter and there are six of these on the front and eight on the rear, making a total of fourteen to a chassis, all alike. The front and rear axle spring clip plates are also the same identical casting, and the clutch and brake pedals are the same.

The driveshaft connecting the clutch to the gearset is the same shaft used in the K-41, 3½-5-ton models and the universal joint assembly is the same as in the K-41 with the exception of the overall length. By reversing the bracket which fasten the steering gear to the dash the location of the wheel in respect to the driver's seat can be altered 2 in.

To compensate for the weave of the truck frame, heavy coil springs hold down the radiator, each side of the rear of the

engine and also the rear of the cab. These six springs are all alike. The front and rear spring brackets and shackles are of the saw slot and clamp bolt construction and the bolts used to clamp these parts are also used to clamp the rocker shaft levers, steering gear trunnion bracket and steering mast bracket, making a total of 36 bolts all alike on each chassis. Another constructional feature that is somewhat unique is that the rear frame is so designed that when it is necessary to cut it



Chassis of the New Kelly-Springfield, Model K-75

off for short frames, the cross member serves as a rear cross member. The bushings used in the front and rear springs and front and rear shackles are all alike.

The standard electrical equipment consists of a Delco generator with 19 plate Exide storage battery and electric tail light, ammeter, dash light, headlight and electric horn. A starter can be furnished at extra cost.

A radiator guard and substantial oak bumpers armored with ½-in. steel protects the radiator and front end of the truck.

The K-75 has an overhead drive axle of the internal gear type and disk wheels, while the K-76 has the worm drive rear

axle with wood wheels as standard equipment. Spoke-type steel wheels are \$30 additional.

The price of either model is \$3600 from which \$100 is deducted for the open seat. The chassis weight is 6200 lbs. for the K-75; 6300 lb. for the K-76. The body allowance on both models is 1500 lb. and the normal load for either model 5000 lb.

The intake and exhaust manifolds are on the right side of the engine, cast integral, providing an exhaust heated intake with three different adjustments for hot, warm and cold intake pipe.

Engine lubrication is by full force pressure system using a gear-type oil pump.

The oil pressure is adjustable. Other specifications include Zenith 1¼-in. car-

buretor with automatic air cleaning device; Eisemann magneto; centrifugal type governor; gravity fuel feed from a 25-gal. capacity tank. Total radiator and engine water capacity is 7 gal. Radiator is of the fin and tube type.

The steering gear is of the cam and lever type, the steering column being surmounted by a 20-in corrugated hand-wheel. The steering column is on the left side with throttle lever and magneto lever directly in the center. The accelerator lever is located on the front floor board. The clutch is of the dry single-plate type of Borg and Beck make, 12 in. in diameter.



English Dump Bodies Interchangeable With Road Sprinkling Tanks

For municipal refuse haulage and street watering this English electric truck is interesting in the saving of equipment that it effects. When the trucks are not being used for hauling refuse the tipping body is readily removed and in its place a watering tank is set. Thus the truck serves a double purpose and this is particularly valuable in maintaining the usefulness of equipment. The dumping mechanism is also electrically operated. Note the method of hanging the electric motors to the outside of the frame.



## KEY OF ABBREVIATIONS

## Wheelbase:

\*—More than one wheelbase furnished.

## Tires:

§§—Unless marked otherwise all tires are solids.  
 •—Pneumatics standard equipment.  
 ‡—Pneumatics at Extra Cost.  
 †—Dual on Rear.

## Engine:

Bud—Buda Co., Harvey, Ill.  
 Con—Continental M. Corp., Detroit, Mich.  
 D—Head & Side  
 GBS—Golden, Belknap & Swartz Co., Detroit, Mich.  
 H—Overhead.  
 Her—Hercules M. Mfg. Co., Canton, Ohio.  
 Hin—Hinkley Motors, Inc., Detroit, Mich.  
 H-S—Herschell-Spillman Motor Co., North Tonawanda, N. Y.  
 H-C—Holl Scott Motor Co., Berkeley, Cal.  
 L—L-Head.  
 Lyc—Lycoming M. Corp., Williamsport, Pa.  
 Mid—Midwest Eng. Co., Indianapolis, Ind.  
 FP—Full Pressure to all bearings including wrist pins.  
 PC—Pressure to all crankshaft and connecting rod bearings.  
 PS—Pressure with splash.  
 SP—Circulating splash.  
 T—T-Head.  
 Wau—Waukesha M. Co., Waukesha, Wis.  
 Wis—Wisconsin M. Mfg. Co., Milwaukee, Wis.  
 Yell—Yellow Sleeve Valve Eng. Works, East Moline, Ill.  
 X—Sleeve.

## Governor:

Con—Continental M. Corp., Detroit, Mich.  
 Dup—Duplex Eng. Gov. Co., Brooklyn, N. Y.  
 Han—Handy Gov. Co., Detroit, Mich.  
 Hin—Hinkley Motors, Inc., Detroit, Mich.  
 McK—E. R. Klemm, Chicago, Ill.  
 Mon—Monarch Gov. Co., Detroit, Mich.  
 Non—Not Supplied.  
 Pha—Pharo Mfg. Co., Detroit, Mich.  
 Pie—Pierce Governor Co., Anderson, Ind.  
 Sim—Duplex Eng. Gov. Co., Brooklyn, N. Y.  
 Wau—Waukesha M. Co., Waukesha, Wis.

## Radiator:

Bre—Bremer-Tully Mfg. Co., Chicago, Ill.  
 Bus—Bush Mfg. Co., Hartford, Conn.  
 Cor—Corcoran Mfg. Co., Cincinnati, Ohio.  
 Chic—Chicago Mfg. Co., Chicago, Ill.  
 E&M—English & Mersick Co., New Haven, Conn.  
 Fed—Fedders Mfg. Co., Buffalo, N. Y.  
 Fle—Flexo Mfg. Co., Los Angeles, Cal.  
 G&O—G. & O. Mfg. Co., New Haven, Conn.  
 Har—Harrison Rad. Corp., Lockport, N. Y.  
 Idl—Ideal Sheet Metal Works, Chicago, Ill.  
 Lon—Long Mfg. Co., Detroit, Mich.  
 McC—McCord Rad. & Mfg. Co., Detroit, Mich.  
 McK—McKinnon Dash Co., Buffalo, N. Y.  
 Per—Racine Radiator Co., Racine, Wis.  
 R-T—Rome-Turney Rad. Co., Rome, N. Y.  
 S-J—Shotwell-Johnson Co., Minneapolis, Minn.  
 Spl—Splittorf Electrical Co., Newark, N. J.  
 Stn—Standard Radiator Co., Inc., Springfield, N. Y.  
 US—U. S. Cartridge Co., Lowell, Mass.  
 Whe—Wheeler Rad. & Mfg. Co., E. Cleveland, Ohio.

## Fuel System:

Car—Carter Carburetor Co., St. Louis, Mo.  
 Ens—Ensign Car. Co., Los Angeles, Cal.  
 G—Gravity.  
 Hol—Holley Carburetor Co., St. Louis, Mo.  
 Joh—Johnson Co., Detroit, Mich.  
 Mar—Marvel Carburetor Co., Flint, Mich.  
 P—Pressure.  
 Ray—Beneke & Kropf Mfg. Co., Chicago, Ill.  
 Soc—Briscoe Devices Corp., Pontiac, Mich.  
 She—Wheeler Schebler Carburetor Co., Indianapolis, Ind.  
 Ste—Detroit Lubricator Co., Detroit, Mich.  
 Str—Stromberg Motor Devices Co., Chicago, Ill.  
 Til—Tillotson Mfg. Co., Toledo, Ohio.  
 V—Vacuum.  
 Zen—Zenith-Detroit Corp., Detroit, Mich.

## Electrical System:

†—Generator & Starter at Extra Cost.  
 †—Starter not Supplied, Generator at Extra Cost.  
 A-C—Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
 Apo—Apollo Magneto Corp., Apollo, Pa.  
 A-K—Atwater Kent Mfg. Co., Phila., Pa.  
 A-L—Electric Auto-Lite Corp., Toledo, O.

Ber—Ericsson Mfg. Co., Buffalo, N. Y.  
 Bij—Bijur Motor Appliance Co., Hoboken, N. J.  
 Bos—American Bosch Magneto Co., Springfield, Mass.  
 Con—Connecticut Telephone & Electric Co., Meriden, Conn.  
 Del—Dayton Engin. Lab. Co., Dayton, Ohio.  
 Dyn—Owen Dyneto Corp., Syracuse, N. Y.  
 Els—Elsemann Magneto Corp., Brooklyn, G&D—Gray & Davis, Boston, Mass.  
 Kin—Kokomo Electric Co., Kokomo, Ind.  
 K-W—K W Ignition Co., Cleveland, Ohio.  
 L-N—Leece-Neville Co., Cleveland, O.  
 N-E—North East Elec. Co., Rochester, N. Y.  
 Non—Not Supplied.  
 POL—Prest-O-Lite Co., Inc., Indianapolis, Ind.  
 Rem—Remy Electric Co., Anderson, Ind.  
 RBO—Robert Bosch Magneto Co., New York, N. Y.  
 Sim—Simms Magneto Co., E. Orange, N. J.  
 Spl—Splittorf Electrical Co., Newark, N. J.  
 Wag—Wagner Elec. Mfg. Co., St. Louis, Mo.  
 Wes—Westinghouse Elec. & Mfg. Co., Springfield, Mass.  
 USL—U. S. Light & Heat Corp., Niagara Falls, N. Y.

## Clutch &amp; Gearset:

\*—Other ratios optional.  
 A—Amidships.  
 B & B—Borg & Beck Co., Chicago, Ill.  
 B-L—Brown-Lipe Gear Co., Syracuse, N. Y.  
 Cot—Cotta Transmission Corp., Rockford, Ill.  
 Cov—Covert Gear Co., Lockport, N. Y.  
 Det—A. J. Detlaff Co., Detroit, Mich.  
 D-G—Detroit Gear & Machine Co., Detroit, Mich.  
 Dod—Dodge Brothers Co., Detroit, Mich.  
 D—Disk.  
 Dun—Dundore Mfg. Co., Reading, Pa.  
 Durs—Durstion Gear Corp., Syracuse, N. Y.  
 Ful—Fuller & Sons Mfg. Co., Kalamazoo, Mich.  
 G-L—Grant Lee Gear Corp., Cleveland, O.  
 Har—Hartford Auto Parts Corp., Hartford, Conn.  
 Hoo—Hoosier Clutch Co., Muncie, Ind.  
 H-S—Hele-Shaw, Merchant & Evans Co., Philadelphia, Pa.  
 J—Unit with Jackshaft.  
 K—Cone.  
 M-E—Merchant & Evans Co., Phila., Pa.  
 M-M—Mechanics Mach. Co., Rockford, Ill.  
 Mun—Muncie Gear Works, Muncie, Ind.  
 O—Disk in Oil.  
 P—Plate.  
 R—Rear Axle.  
 U—Unit with Engine.  
 W-G—Warner Gear Co., Muncie, Ind.

## Universal:

Blo—Blood-Bros. Mach. Co., Allegan, Mich.  
 Det—Universal Products Co., Detroit, Mich.  
 Har—Hartford Auto Parts Corp., Hartford, Conn.  
 M-M—Mechanics Machine Co., Rockford, Ill.  
 M-E—Merchant & Evans Co., Phila., Pa.  
 Pet—Cleveland Universal Parts Co., Cleveland, Ohio.  
 Pic—Carl Pick Co., West Bend, Wis.  
 Sne—Snead & Co., Jersey City, N. J.  
 Spl—Spicer Mfg. Corp., S. Plainfield, N. J.  
 The—Thermoid Rubber Co., Trenton, N. J.  
 U-M—Universal Machine Co., Bowling Green, Ohio.  
 U-P—Universal Products Co., Detroit, Mich.

## Front and Rear Axles:

¼—Semi-Floating.  
 ¾—Three-Quarter Floating.  
 Atl—Atlas Axle Co., Wilmington, Del.  
 Cla—Clark Equip. Co., Buchanan, Mich.  
 Col—Columbia Axle Co., Cleveland, O.  
 Con—Continental Axle Co., Edgerton, Wis.  
 C—Chain.  
 B—Straight Bevel.  
 D—Dead.  
 Eat—Eaton Axle Co., Cleveland, Ohio.  
 Fil—Flint Motor Axle Co., Flint, Mich.  
 F—Floating.  
 Huc—Huck Axle Co., Chicago, Ill.  
 I—Internal Gear.  
 LM—L. M. Axle Co., Cleveland, Ohio.  
 P—Spur Gear.  
 R—Double Reduction.  
 Rus—Russell Motor Axle Co., Detroit, Mich.  
 S—Spiral Bevel.  
 Sal—Sallsbury Axle Co., Jamestown, N. Y.  
 She—Sheldon Axle & Spring Co., Wilkes-Barre, Pa.  
 Shu—Shuler Axle Co., Inc., Louisville, Ky.  
 Std—Standard Parts Co., Cleveland, O.

Tim—Timken Detroit Axle Co., Detroit, Mich.  
 Tor—Eaton Axle & Spring Co., Cleveland, Ohio.  
 Vul—Vulcan Motor Axle Co.  
 Wal—Walker Axle Co., Chicago, Ill.  
 W—Worm.  
 Wis—Wisconsin Parts Co., Oshkosh, Wis.

## Brake:

A—Rear Wheels only.  
 B—Drive Shaft and Rear Wheels.  
 C—Front and Rear Wheel.  
 D—Jackshaft and Rear Wheels.

## Springs:

Am—American Auto Parts Co., Detroit, Mich.  
 Arm—General Motors Co., Pontiac, Mich.  
 Bea—Beans Spring Co., Inc., Massillon, O.  
 Bet—Betts Bros. Sp. Co., Inc., San Francisco, Cal.  
 Cha—Champion Auto Sp. Co., St. Louis, Mo.  
 Del—D. Delany & Son, Newark, N. J.  
 Det—Detroit Steel Prod. Co., Detroit, Mich.  
 G-C—Garden City Sp. Works, Chicago, Ill.  
 Har—Harvey Sp. & Forging Co., Racine, Wis.  
 I-C—Iron City Spring Co., Pittsburgh, Pa.  
 Lig—Liggett Sp. & Axle Co., Monongahela, Pa.  
 Mar—Maremont Mfg. Co., Chicago, Ill.  
 Mat—Mather Spring Co., Toledo, O.  
 Mer—E. R. Merrill Spring Co., New York.  
 Pen—Penn Sp. Works, Baldwinville, N. Y.  
 Per—Perfection Sp. Co., Cleveland, O.  
 Phi—Phila. Sp. Works, Phila., Pa.  
 P.S.—Point Sp. Co., Pittsburgh, Pa.  
 S. S.—Standard Steel Sp. Co., Coraopolis, Pa.  
 Ste—Sterling Spring Co., Pittsburgh, Pa.  
 Tem—Temme Sp. Corp., Chicago, Ill.  
 Tut—Tuthill Sp. Co., Chicago, Ill.  
 U. S.—United States Sp. Co., Los Angeles, Cal.  
 Vul—Jenkins Vulc. Sp. Co., Richmond, Ind.

## Steering Gear:

CAS—C. A. S. Products Co., Columbus, O.  
 Dit—Ditwiler Mfg. Co., Gallion, Ohio.  
 Dod—Dodge Bros. Co., Detroit, Mich.  
 Gem—Gemmer Mfg. Co., Detroit, Mich.  
 Jac—Saginaw Products Co., Saginaw, Mich.  
 Lav—Lavine Gear Co., Milwaukee, Wis.  
 M-P—Muncie Gear Works Corp., Muncie, Ind.  
 Ros—Ross Gear & Tool Co., Lafayette, Ind.  
 Sag—Saginaw Products Co., Saginaw, Mich.  
 Woh—Wohlrab Gear Co., Racine, Wis.

## Wheels:

Arc—Archibald Wheel Co., Lawrence, Mass.  
 A-W—Auto Wheel Co., Lansing, Mich.  
 Bim—Bimel Spoke & Auto Wheel Co., Portland, Ind.  
 Bud—Budd Wheel Co., Phila., Pa.  
 Cla—Clark Equip. Co., Buchanan, Mich.  
 Day—Dayton Steel Foundry Co., Dayton, Ohio.  
 Det—Detroit Panel & Plywood Co., Detroit, Mich.  
 Dis—Disteel Wheel Corp., Detroit, Mich.  
 Hay—Hayes Wheel Co., Jackson, Mich.  
 Hoo—Hoopes, Bro. & Darlington, Inc., West Chester, Pa.  
 Ind—Indestructible Wheel Co., Lebanon, Ind.  
 Int—Interstate Foundry Co., Chicago, Ill.  
 Jon—Jones, Phineas & Co., Newark, N. J.  
 Kel—Kelsey Wheel Co., Detroit, Mich.  
 MM—Michigan Malleable Iron Co., Detroit.  
 Mot—Motor Wheel Corp., Lansing, Mich.  
 Mun—Muncie Wheel Co., Muncie, Ind.  
 Nor—Northern Wheel Corp., Alma, Mich.  
 Pru—Prudden Wheel Co., Lansing, Mich.  
 Roy—Royer Wheel Co., Aurora, Ind.  
 Sch—Schwarz Wheel Co., Phila., Pa.  
 Smi—Smith Wheel, Inc., Syracuse, N. Y.  
 StM—St. Marys Wheel Co., St. Marys, O.  
 Std—Standard Wheel Co., Terre Haute, Ind.  
 Van—Van Wheel Corp., Oneida, N. Y.  
 Wal—Walker Axle Co., Chicago, Ill.  
 Way—Wayne Wheel Co., Newark, N. Y.  
 Whit—Whitcomb Wheel Co., Kenosha, Wis.

## Rim Equipment:

Fir—Firestone Steel Products Co., Akron, Ohio.  
 Gdy—Goodyear Tire & Rubber Co., Akron, Ohio.  
 Hay—Hayes Wheel Co., Jackson, Mich.  
 Jax—Jaxon Steel Prod. Co., Jackson, Mich.  
 Kel—Kelsey Wheel Co., Detroit, Mich.  
 Mil—Miller Rubber Co., Akron, Ohio.  
 Non—None Supplied.

# Commercial Car Specifications—Corrected Monthly

The Specifications, Chassis Prices, Etc., Are Corrected Each Month From Data Supplied Direct by the Makers. Gasoline Tractor-Trucks Will be Found at the End of Gasoline Commercial Cars

Those Chassis Which Are Sold and Recommended for Passenger Transportation Are Designated in the Following Table by Reference Sign (\$) in Front of the Name

For Specially Designed Motor Bus Chassis See Pages 44 and 45

See Table for Replacement Data. Truck Frame Dimensions Are Included in Same Table

(Where prices are not given it is because we have been unable to get them from authoritative sources)

For full name and address of manufacturer and information regarding complete line see page 43

Trade Name and Model	General			Engine				Electrical System		Clutch	Gearset		Rear Axle		Gear Ratios		Front Axle Make and Model	Springs (Make)	Steering Gear (Make)	Wheels (Make)	Rims (Make)	Chassis Weight (lbs.)									
	Tire Size		Rear (inches)	Bore and Stroke (inches)	N.A.C.C. Rated H.P.	Valve Arrangement	Oiling System	Governor (Make)	Radiator (Make)		Fuel System		Generator and Starter (Make)	Type	Make and Model	Location							No. of Forward Speeds	Universals (Make)	Make and Model	Type	Total Reduction in High	Total Reduction in Low	Brakes, Location		
	Standard Wheelbase (inches)	Front (inches)								Carburetor (Make)	Fuel Feed																				
<b>1000 Pounds</b>																															
Chevrolet Sup. Com. Ch.	410	30x3 1/2	30x3 1/2	3 1/4 x 4	21.7	H	PS	PC	Non	Har	Zen	G	Rem	Rem	K	Own Sup	U	3	Own	Own Sup	S	3.77	12.5	A	Own Sup	S.S.	Own	Own	Hay	Jax	1430
Overland .91	395	30x3 1/2	30x3 1/2	3 1/4 x 4	19.6	L	PS	PC	Non	Har	Zen	G	Rem	Rem	P	Own 91	U	3	Own	Own 91	B	4.50	17.6	A	Own 91	Mat	Own	Own	Hay	Hay	1550
Yellow Cab DI Mod T3	1395	29x4 1/2	29x4 1/2	22.5	22.5	L	PS	PC	Non	Lon	Zen	G	Rem	Rem	D	B-L 30Y	U	3	Spi	Tim	S	4.90	16.3	B	Tim	Mat	Own	Gen	Woo	Fir	2500
<b>1500 Pounds</b>																															
Corbett S.	1300	34x4 1/2	34x4 1/2	3 1/2 x 5	19.8	L	PS	PC	Non	McC	Str	V	Eis	Eis	D	B-L 30	U	3	Spi	She W1002	W	6.00	20.0	A	She 33FA	She	Ros	Ros	Bim	Fir	3420
Diamond T75.	130	33x5	33x5	4 x 5	25.6	L	SP	PC	Non	G&O	Zen	G	ApO	A-L	D	Cov JUC	U	3	Spi	Col 52000	S	5.12	18.5	A	Col 5000	Mat	Own	Own	Kel	Kel	2825
Dodge Brothers.	730	32x4	32x4	3 3/4 x 5	24.0	L	PC	PC	Non	McC	Str	V	Eis	Eis	D	Own	U	3	Spi	Own	S	4.54	18.9	A	Own D	Own	Own	Own	Hay	Hay	1992
Rainier, R-31.	1970	35x5	35x5	3 3/4 x 5	22.5	L	PS	PC	Non	Har	Zen	V	Eis	Eis	D	B-L 30	U	3	Har	Tim 6250	W	6.75	22.5	A	Tim 1250	Per	Lav	Lav	Jon	Kel	2500
Ruggles 15.	122	32x4 1/2	32x4 1/2	3 3/4 x 5	19.6	L	PS	PC	Non	Per	Zen	G	...	...	D	Ful J	U	3	Spi	Col 3000	W	5.81	19.7	A	Col 3000	Det	Lac	Lac	Nor	Fir	2300
White 15.	2400	34x5	34x5	3 3/4 x 5 1/2	22.5	L	SP	PC	Non	Own	Zen	G	...	...	D	Own 15	U	5	Spi	Own 15	B	5.36	18.6	A	Own 15	...	Own	Woo	Woo	Fir	3225
<b>1 Ton</b>																															
Autocar F.	2200	34x4 1/2	34x4 1/2	4 1/4 x 5 1/2	18.1	L	SP	PC	Non	Own	Str	G	Bos	Bos	L-N	Own F	U	3	Spi	Own F	R	8.30	33.2	A	Own F	Del	Ros	Ros	Hoo	...	3800
Autocar G.	2300	34x4 1/2	34x4 1/2	4 1/4 x 5 1/2	18.1	L	SP	PC	Non	Own	Str	G	Bos	Bos	L-N	Own F	U	3	Spi	Own F	R	8.30	33.2	A	Own F	Del	Ros	Ros	Hoo	...	3800
Bessemer G.	1685	35x5	35x5	3 3/4 x 5	19.6	L	FP	PC	Non	Stn	Str	G	Bos	Bos	L-N	D-G	U	3	Blo	Tim Bevel	S	6.86	21.8	A	She 350	Per	Ros	Ros	Sch	Fir	3000
Bethlehem KN.	1865	35x5	35x5	3 3/4 x 5 1/2	22.3	L	FP	PC	Non	Chi	Zen	G	Bos	Bos	L-N	B-L 30	U	3	Pet	Tim 6352	W	5.13	20.5	A	Tim 1250	Mat	Lav	Lav	Sml	Fir	3150
Bets J-3.	1860	34x5	34x5	3 3/4 x 5 1/2	22.3	L	PC	PC	Non	G&O	Zen	V	Eis	Eis	B-L 30	U	3	Pet	Tim 6352	W	5.13	20.5	A	Tim 1250	Mat	Lav	Lav	Sml	Fir	3150	
Brookway E-3.	135	33x5	33x5	4x5	25.6	H	PC	PC	Non	G&O	Zen	V	Eis	Eis	B-L 30	U	3	Pet	Tim 6352	W	5.13	20.5	A	Tim 1250	Mat	Lav	Lav	Sml	Fir	3150	
Casco A.	1700	34x5	34x5	3 3/4 x 5 1/2	23.4	L	PC	PC	Non	G&O	Zen	V	Eis	Eis	B-L 30	U	3	Spi	Col 52024	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Chevrolet Sup.	495	34x5	34x5	3 3/4 x 5 1/2	21.7	L	PC	PC	Non	Har	Zen	G	Bos	Bos	L-N	Own Sup	U	3	Own	Col 52000	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200
Comet 11.	127	34x5	34x5	3 3/4 x 5	22.5	L	PC	PC	Non	Lon	Zen	V	Eis	Eis	B-L 30	U	3	Own	Sal 1455	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Comet 12.	135	34x5	34x5	3 3/4 x 5	22.5	L	PC	PC	Non	Lon	Zen	V	Eis	Eis	B-L 30	U	3	Own	Sal 1455	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Corbett E.	1600	34x5 1/2	34x5 1/2	4 1/2 x 5 1/2	22.5	L	PC	PC	Non	McC	Zen	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Diehl A-1.	115	34x4 1/2	34x4 1/2	3 3/4 x 5	22.5	L	PS	PC	Non	McC	Str	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
D-Olt A-1.	1695	35x5	35x5	3 3/4 x 5	19.6	L	PS	PC	Non	Per	Zen	G	Bos	Bos	L-N	D-G	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200
Dorris K-2.	2400	35x5	35x5	3 3/4 x 5	22.5	L	PC	PC	Non	Mod	Zen	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Duplex G.	370	33x5	33x5	3 3/4 x 5	22.5	L	FP	PC	Non	Own	Zen	G	Bos	Bos	L-N	Own TT	U	3	Pet	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200
Duplex R-2.	132	30x3 1/2	30x3 1/2	3 3/4 x 5	22.5	L	FP	PC	Non	Own	Zen	G	Bos	Bos	L-N	Own TT	U	3	Pet	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200
Ford T.	1495	34x5 1/2	34x5 1/2	3 3/4 x 5 1/2	22.5	L	PC	PC	Non	Liv	Zen	G	Bos	Bos	L-N	Own TT	U	3	Pet	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200
Fulton A.	132	30x3 1/2	30x3 1/2	3 3/4 x 5	22.5	L	PC	PC	Non	Own	Zen	G	Bos	Bos	L-N	Own TT	U	3	Pet	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200
Garford 15.	1875	34x5	34x5	3 3/4 x 5 1/2	22.5	L	PC	PC	Non	Lon	Zen	G	Bos	Bos	L-N	Own TT	U	3	Pet	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200
Garford 16.	1875	34x5	34x5	3 3/4 x 5 1/2	22.5	L	PC	PC	Non	Lon	Zen	G	Bos	Bos	L-N	Own TT	U	3	Pet	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200
GMC K-16.	1475	33x5	33x5	3 3/4 x 5	22.5	L	PC	PC	Non	McC	Zen	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Goffredson 20 B.	1265	34x4 1/2	34x4 1/2	3 3/4 x 5	22.5	L	PC	PC	Non	McC	Zen	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Graham Bros. BA.	1265	34x4 1/2	34x4 1/2	3 3/4 x 5	22.5	L	PC	PC	Non	McC	Zen	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Grann-Bern. 10-Sp.	1229	33x5	33x5	3 3/4 x 5	22.5	L	PC	PC	Non	Own	Zen	G	Bos	Bos	L-N	Own TT	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200
Grass-Premier 40.	1450	34x5	34x5	3 3/4 x 5	22.5	L	PC	PC	Non	Chi	Zen	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Independent (Iowa) J.	1450	34x5	34x5	3 3/4 x 5	22.5	L	PC	PC	Non	Chi	Zen	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Indiana 11.	124	32x4 1/2	32x4 1/2	3 3/4 x 5	22.5	L	PC	PC	Non	McC	Zen	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Intern 11.	124	32x4 1/2	32x4 1/2	3 3/4 x 5	22.5	L	PC	PC	Non	Lon	Zen	G	Bos	Bos	L-N	Own TT	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200
Kearns H.	1150	32x4 1/2	32x4 1/2	3 3/4 x 5	19.6	L	PS	PC	Non	Own	Zen	G	Bos	Bos	L-N	Own TT	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200
Kenworth OS.	2150	30x5	30x5	34x5 1/2	22.5	L	PC	PC	Non	Own	Zen	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Kenworth OL.	2250	30x5	30x5	34x5 1/2	22.5	L	PC	PC	Non	Own	Zen	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
King-Zettler.	2050	34x5	34x5	34x5 1/2	22.5	L	PC	PC	Non	Pha	Str	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Kissel.	1585	34x5	34x5	34x5 1/2	22.5	L	PC	PC	Non	McC	Zen	V	Eis	Eis	B-L 30	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200	
Land.	1685	34x5	34x5	34x5 1/2	22.5	L	PC	PC	Non	Own	Zen	G	Bos	Bos	L-N	Own TT	U	3	Spi	Tim 6352	S	5.85	23.4	A	Col 5000	Sta	Woh	Woh	Are	Fir	3200
Menominee.	1650	34x5	34x5	34x5 1/2	22.5	L																									





For full name and address of manufacturer and information regarding complete line see page 43

Trade Name and Model	General			Engine						Electrical System		Clutch	Gearset		Rear Axle		Gear Ratios		Front Axle Make and Model	Springs (Make)	Steering Gear (Make)	Wheels (Make)	Rims (Make)	Chassis Weight (lbs.) (stripped)							
	Standard Wheelbase (inches)	Tire Size		Bore and Stroke (inches)	N.A.C.C. Rated H.P.	Valve Arrangement	Oiling System	Governor (Make)	Radiator (Make)	Fuel System			Ignition System (Make)	Generator and Starter (Make)	Type	Make and Model	Location	No. of Forward Speeds							Universals (Make)		Final Drive	Type	Total Reduction in High	Total Reduction in Low	Brakes, Location
		Front (inches)	Rear (inches)							Carburetor (Make)	Fuel Feed (Make)																				
1½ Ton—Con'd																															
International 33.....	128	36x4	36x6	3½x5	22.5	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	8.00	32.5	A	Own 33	4070									
Kearns N.....	1650	34x4	34x6	3½x5	22.5	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.60	30.0	A	Own 33	3000									
Kelly-Springfield K33	2750	30x3½	36x6	3½x5	24.1	L	FP	Pha	Con J-4	Con J-4	G	R	Non	D	Own 33	I	D	7.75	41.5	A	Own 33	5450									
King-Zettler.....	2375	34x4	34x6	3½x5	24.1	L	FP	Pha	Con J-4	Con J-4	G	R	Non	D	Own 33	I	D	7.75	38.5	A	Own 33	4300									
Kleiber.....	1975	30x3½	36x6	3½x5	24.1	L	FP	Pha	Con J-4	Con J-4	G	R	Non	D	Own 33	I	D	7.80	28.5	A	Own 33	4100									
Kleiber.....	2600	30x4	36x7	3½x5	27.2	L	FP	Pha	Con J-4	Con J-4	G	R	Non	D	Own 33	I	D	7.75	41.5	A	Own 33	4220									
Lange 1½.....	2750	34x4	34x6	3½x5	27.2	L	FP	Pha	Con J-4	Con J-4	G	R	Non	D	Own 33	I	D	8.75	46.8	A	Own 33	4225									
Larabee XJ.....	2465	30x6	36x6	3½x5	27.3	L	FP	Pha	Con J-4	Con J-4	G	R	Non	D	Own 33	I	D	7.80	46.8	A	Own 33	4225									
Luedinghaus.....	144	34x3½	34x5	4 x5½	25.6	L	P	Non	Own	Own	G	R	Non	D	Own 33	I	D	7.80	46.8	A	Own 33	4225									
Mack AB.....	3000	36x4	36x3½	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	6.99	37.8	A	Own 33	5100									
Mack AB.....	3000	36x4	36x3½	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	6.99	37.8	A	Own 33	5100									
Mason Road King.....	1495	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.60	36.8	A	Own 33	3320									
Master 21.....	142	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	5.50	19.3	A	Own 33	4300									
Maxwell 25.....	124	35x3½	35x5	3½x4½	21.0	H	P	Non	Own	Own	G	R	Non	D	Own 33	I	D	7.25	34.4	A	Own 33	3385									
Memphis H.....	2475	30x3½	36x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	8.25	30.3	A	Own 33	4220									
Moreland BX.....	2275	30x3	36x6	4 x5	25.6	L	FP	Pha	Con K-4	Con K-4	G	R	Non	D	Own 33	I	D	7.00	28.0	A	Own 33	4125									
Nelson-LeMoon G-2.....	2200	30x4	36x6	4 x5	25.6	L	FP	Pha	Con K-4	Con K-4	G	R	Non	D	Own 33	I	D	7.00	28.0	A	Own 33	4125									
Noble A-21.....	1750	34x3½	36x5	3½x5	22.5	L	FP	Pha	Con K-4	Con K-4	G	R	Non	D	Own 33	I	D	6.50	26.0	A	Own 33	3800									
O. K.....	136	34x3½	36x5	3½x5	22.5	L	FP	Pha	Con K-4	Con K-4	G	R	Non	D	Own 33	I	D	9.33	25.8	A	Own 33	4100									
Ogden D2.....	140	30x3½	36x5	3½x5	22.5	L	FP	Pha	Con K-4	Con K-4	G	R	Non	D	Own 33	I	D	7.75	25.8	A	Own 33	3700									
Parker E-24.....	2150	34x3½	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.25	29.8	A	Own 33	3250									
Power.....	136	35x5	35x5	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	5.00	19.3	A	Own 33	3250									
Rainier R36.....	2500	34x3½	34x5	3½x5	22.5	L	FP	Pha	Con J-4	Con J-4	G	R	Non	D	Own 33	I	D	7.75	25.0	A	Own 33	2900									
Republic 10F.....	140	34x4	34x5	3½x5	22.5	L	FP	Pha	Con J-4	Con J-4	G	R	Non	D	Own 33	I	D	6.28	25.0	A	Own 33	3400									
Rugely A.....	150	30x5	32x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.80	25.0	A	Own 33	3000									
Rumely A.....	2150	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.80	25.0	A	Own 33	4050									
Sandow.....	1895	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.75	26.6	A	Own 33	3595									
Sandwich W-15.....	2500	34x3½	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.00	33.6	A	Own 33	4510									
Schacht H.....	140	30x3½	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.20	33.6	A	Own 33	4695									
Service 33.....	146	34x3½	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	6.1	23.0	A	Own 33	3650									
Service 25C.....	146	30x5	32x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.75	31.0	A	Own 33	3650									
Signal H.....	146	34x3½	34x5	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.20	31.8	A	Own 33	3666									
Standard 1½K.....	144	30x3½	34x5	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	6.50	34.8	A	Own 33	4780									
Sterling 1½.....	142	34x3½	36x5	3½x5	22.5	L	FP	Pha	Con J-4	Con J-4	G	R	Non	D	Own 33	I	D	6.25	25.1	B	Own 33	3200									
Stewart 17.....	1595	34x5	34x5	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	6.25	25.1	B	Own 33	3200									
Traffic.....	1750	35x5	35x5	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	6.15	22.5	A	Own 33	3400									
Transport 26.....	2390	34x3½	34x5	3½x5	22.5	L	FP	Pha	Con N-4	Con N-4	G	R	Non	D	Own 33	I	D	7.25	29.0	A	Own 33	3800									
Traylor B.....	2390	34x3½	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.80	28.0	A	Own 33	4300									
Triangle A.....	1985	34x3½	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.25	29.0	A	Own 33	3750									
Union E.....	150	34x7	34x7	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	5.80	23.7	A	Own 33	2940									
United 30.....	148	34x4	34x7	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	6.00	24.5	A	Own 33	3740									
United 32.....	148	34x4	34x7	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	6.00	24.5	A	Own 33	3740									
U. S. N.....	2800	30x6	36x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.60	30.4	A	Own 33	3800									
Wachusett J.....	2800	30x6	36x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.60	30.4	A	Own 33	3800									
Walker-Johnson L.....	2500	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.20	38.5	A	Own 33	3900									
Wilcox BB.....	2550	30x4	36x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.20	38.5	A	Own 33	3900									
Wisconsin B.....	1850	30x3	35x5	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	6.25	29.9	B	Own 33	3200									
Witt-Will N.....	2450	30x3½	36x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	7.00	30.3	A	Own 33	4000									
2 Ton																															
Acme 40.....	141	34x3½	34x5	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	8.75	35.0	A	Own 33	3980									
Acme 40-L.....	147	34x3½	34x5	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	8.75	35.0	A	Own 33	4583									
Autocar F.....	2200	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	8.30	33.2	A	Own 33	3900									
Autocar G.....	2300	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	8.30	33.2	A	Own 33	3900									
Autocar H.....	2300	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	8.30	33.2	A	Own 33	3900									
Autocar K.....	2350	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	8.30	33.2	A	Own 33	3900									
Autocar L.....	2350	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	8.30	33.2	A	Own 33	3900									
Autocar M.....	2350	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	8.30	33.2	A	Own 33	3900									
Autocar N.....	2350	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	8.30	33.2	A	Own 33	3900									
Autocar O.....	2350	34x4	34x6	4 x5	25.6	L	SP	Own	Own	Own	G	R	Non	D	Own 33	I	D	8.30	33.2	A	Own 33										



## 21½ Ton

For full name and address of manufacturer and information regarding complete line see page 43

Trade Name and Model	General			Engine				Electrical System		Clutch	Gearset		Rear Axle		Gear Ratios		Front/Axle Make and Model	Springs (Make)	Steering Gear (Make)	Wheels (Make)	Rims (Make)	Chassis Weight (lbs.)							
	Standard Wheelbase (inches)	Tire Size §§		Bore and Stroke (inches)	N.A.C.C. Rated H.P.	Valve Arrangement	Oiling System	Governor (Make)	Radiators (Make)		Carburetor (Make)	Fuel System	Ignition System	Generator and Starter (Make)	Type	Location							No. of Forward Speeds	Universals (Make)	Make and Model	Type	Total Reduction in High	Total Reduction in Low	Brakes, Location
		Front (inches)	Rear (inches)																										
2½ Ton—Con'd																													
Day-Elder DN	144	36x44	36x77	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.50	45.1	A	Col 7018						
Diamond-T U2	160	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	7.90	36.8	A	Tim 1544B						
Dixon C	3250	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.50	45.4	A	Tim 1520						
Duplex AC	160	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	7.45	45.6	A	Tim 1542B						
Federal U2	157	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	7.25	49.1	A	Tim 1542B						
Gary J. K-41A	3250	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	7.25	49.1	A	Tim 1542B						
G.M.C. K-41B	148	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	7.25	49.1	A	Tim 1542B						
G.M.C. K-41C	158	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	7.25	49.1	A	Tim 1542B						
G.M.C. K-41C	191½	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	7.25	49.1	A	Tim 1542B						
Gramm-Bernstein 125	3050	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Gramm-Bernstein 86	2950	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Harvey WFB	2800	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Hawkeye	3050	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Independent HW	2940	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Indian 20	160	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Kankakee H	3600	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Kelly-Springfield K75	3600	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Kelly-Springfield K76	3600	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Kimball AC	3060	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
King Zeidler	2875	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Kiesel	2875	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Kleber	3650	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Kreba K45	140	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Lange E	3450	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Larnabee K-5	3550	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Luedinghaus	145	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Mack AB	3400	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Mack AB	3500	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Master 41	152	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
National T	152	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Nelson & LeMoon	168	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Netco HL	3500	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Noble D-51	3350	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Ogden E2	160	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
O.K.A.	3250	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Old Reliable B	3500	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Oncida C	3200	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Oshkosh BO	3875	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Oshkosh BBO	3975	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Parker G-24	3450	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Power F	150	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Rainier R-20	3550	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Rainier R-20	3650	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Rowe CDW	3575	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Ruggles 40-H	148	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Sandwich 40-H	165	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Sandwich 40-H	176	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Sandwich 40-H	3400	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Sandwich 40-H	3400	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Sandwich 40-H	3400	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Sandwich 40-H	3400	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A	Tim 1542B						
Sandwich 40-H	3400	36x44	36x88	4½x5½	27.2	L	FP	Mon	Bus	Zen	V	Eis	Bos	Bos	U	4	Spi	Tim 6566	W	8.25	46.8	A							





For full name and address of manufacturer and information regarding complete line see page 43

Trade Name and Model	General			Engine					Electrical System		Clutch	Gearset			Rear Axle		Gear Ratios		Front Axle Make and Model	Springs (Make)	Steering Gear (Make)	Wheels (Make)	Rims (Make)	Chassis Weight (lbs.) (stripped)				
	Standard Wheelbase (inches)	Tire Size (inches)		Bore and Stroke (inches)	N.A.C.C. Rated H.P.	Valve Arrangement		Oiling System	Governor (Make)	Radiator (Make)		Fuel System		Ignition System (Make)	Generator and Starter (Make)	Type	Make and Model	Final Drive							Type	Total Reduction in High	Total Reduction in Low	Brakes, Location
		Front (inches)	Rear (inches)			Carburetor (Make)	Fuel Feed																					
<b>3½ Ton—con't</b>																												
National NB.....	164	36x6†	36x6†	4½x6½	32.4 L	Wau DU	Wau DU	Zen	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7650					
Noble E-71.....	3095	36x5†	36x5†	4½x6½	32.4 L	Bud YTU	Bud YTU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7250					
Nelson & LeMoon G.....	Opt	36x5	36x5	4½x6½	32.4 L	Con L-4	Con L-4	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6000					
Northway C-3½.....	178	36x5	36x5	4½x6½	32.4 L	Own B-3	Own B-3	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7300					
O'Brien F.....	3975	36x5	36x5	4½x6½	32.4 L	Bud YTU	Bud YTU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Old Reliable C.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Oshkosh.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida D.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida J.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida K.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida L.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida M.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida N.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida O.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida P.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida Q.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida R.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida S.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida T.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida U.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida V.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida W.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida X.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida Y.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida Z.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AA.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AB.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AC.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AD.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AE.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AF.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AG.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AH.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AI.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AJ.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AK.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AL.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AM.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AN.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AO.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AP.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AQ.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AR.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AS.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AT.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AU.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AV.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AW.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AX.....	4300	36x5	36x5	4½x6½	32.4 L	Hin 200	Hin 200	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	7700					
Onesida AY.....	4250	36x5	36x5	4½x6½	32.4 L	Wau VAU	Wau VAU	Chi	G V	Eis	Non	M-E	P	B-L 55	A	4	4	Spi	Tim 6666	Tim 6666	Tim 6666	Tim 6666	6550					
Onesida AZ.....	4300	36x5																										



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# Manufacturers and Models Included in Specifications on Preceding Pages

Also Manufacturers of Buses as Listed in the Bus Table

## Truck Manufacturers Who Distribute Nationally

Note: This grouping of the manufacturers has been made from the best information at hand. Manufacturers are invited to furnish us with further information in relation to their distribution which will enable us to make this grouping as correct as possible.

Acme—1½, 2, 3, 4½, 6¼—Bus—Acme Motor Truck Co., Cadillac, Mich.  
 American-LaFrance—2½, 3½, 5—American-LaFrance Fire Engine Co., Inc., Elmira, N. Y.  
 Armleder—3½—O. Armleder Motor Truck Co., Cincinnati, Ohio.  
 Atterbury—1½, 2½, 3½, 5—Atterbury Motor Car Co., Buffalo, N. Y.  
 Autocar—1, 1½, 1½, 2, 2½, 3, 4, 5, 6—Autocar Co., Ardmore, Pa.  
 Bessemer—1, 1½, 2½, 4—Bessemer Motor Truck Co., Plainfield, N. J.  
 Bethlehem—1, 2, 2½, 3½—Bethlehem Motors Corp., Allentown, Pa.  
 Bridgeport—1½, 2½, 4—Bus—Bridgeport Motor Truck Corp., Stratford, Conn.  
 Brockway—1, 1½, 2½, 3½, 5—Bus—Brockway Motor Truck Corp., Cortland, N. Y.  
 C. T.—½, ¾, 1, 2, 3, 3½, 5—Commercial Truck Co., Phila., Pa.  
 Chevrolet—½, 1—Chevrolet Motor Co., G. M. C. Bldg., Detroit, Mich.  
 Clydesdale—1½, 2½, 3½, 5, 7—Clydesdale Motor Truck Co., Clyde, Ohio.  
 Commerce—1, 1½, 2½—Bus—Commerce Motor Truck Co., Ypsilanti, Mich.  
 Day-Elder—1½, 2, 2½, 3, 4, 5-6—Bus—Day-Elder Motors Corp., Newark, N. J.  
 Defiance—1½, 1½, 2, 3—Defiance Motor Truck Co., Defiance, Ohio.  
 Diamond T—¼-1, 1½, 1½, 2½, 3½, 5—Diamond T Motor Car Co., Chicago, Ill.  
 Dodge Brothers—¾—Dodge Brothers, Inc., Detroit, Mich.  
 Double Drive—3—Double Drive Truck Co., Benton Harbor, Mich.  
 Duplex—1, 1½, 2, 2½, 3½—Bus—Duplex Truck Co., Lansing, Mich.  
 F. W. D.—3—Four-Wheel Drive Auto Co., Clintonville, Wis.  
 Fageol—2, 3, 4, 6—Bus—Fageol Motors Co., Oakland, Cal.  
 Federal—¾, 1, 1½, 2, 3½, 5—Bus—T.T.—Federal Motor Truck Co., Detroit, Mich.  
 Fifth Avenue—Bus—Fifth Avenue Coach Co., New York City.  
 Ford—1—Ford Motor Co., Highland Park, Mich.  
 Front Drive—1½—Double Drive Truck Co., Benton Harbor, Mich.  
 G. M. C.—1, 2½, 3½, 5—General Motors Truck Co., Pontiac, Mich.  
 Garford—1, 1½, 4, 5, 7½—Bus—Garford Motor Truck Co., Lima, Ohio.  
 Gary—1, 2, 2½, 3½, 5—Gary Motor Corp., Gary, Ind.  
 Gotfredson—1, 1½, 2, 3, 4, 5—Gotfredson Truck Corp., Detroit, Mich.  
 Gotfredson Truck Corp., Ltd., Walkerville, Mich.  
 Graham—1, 1½—Graham Brothers, Detroit, Mich.  
 Gramm-Bernstein—1, 1½, 1½, 2, 2½, 3½, 4, 5—Gramm-Bernstein Motor Truck Co., Lima, Ohio.  
 Indiana—1, 1½, 2, 2½, 3½, 5—Indiana Truck Corp., Marion, Ind.  
 International—1, 1½, 2, 3, 5—Bus—International Harvester Co. of America, Chicago, Ill.  
 Kelland—¾, 1—Kelland Motor Car Co., Newark, N. J.  
 Kelly-Springfield—1½, 2½, 3½, 6—Kelly-Springfield Motor Truck Co., Springfield, Ohio.  
 Kissel—1, 1½, 2½, 4—Bus—Kissel Motor Car Co., Hartford, Wis.  
 Krebs—1½, 2½, 5—Krebs Motor Truck Co., Bellevue, Ohio.  
 Lansden—¾, 1, 2, 3½, 5, 6—Lansden Company, Danbury, Conn.  
 Larrabee-Deyo—1½, 1½, 2½, 3½—Bus—Larrabee-Deyo Motor Truck Co., Inc., Binghamton, N. Y.  
 Maccar—1½, 2, 3, 4, 5—Maccar Truck Co., Scranton, Pa.  
 Mack—1½, 2, 2½, 3½, 5, 6½, 7½—Bus—T.T.—International Motor Co., New York, N. Y.  
 Mason Road King—1½—Mason Motor Truck Co., Flint, Mich.  
 Master—1½, 1½, 2½, 3½, 5, 5½—Bus—Master Motor Truck Mfg. Co., Chicago, Ill.  
 Maxwell—1½—Maxwell Motor Co., Inc., Detroit, Mich.  
 Menominee—1, 1½, 1½, 2, 3½, 5—Bus—Menominee Motor Truck Co., Clintonville, Wis.  
 Nash—1, 2, 2½—Nash Motors Co., Kenosha, Wis.  
 Northway—2, 3½—Northway Motors Corp., Natick, Mass.  
 O. B.—2, 3½, 5—O. B. Electric Vehicles, Inc., Long Island City, N. Y.  
 Oshkosh—2, 2½, 4—Oshkosh Motor Truck Mfg. Co., Oshkosh, Wis.  
 Overland—1½—Willis-Overland Co., Toledo, Ohio.  
 Patriot—1, 2, 3—Patriot Mfg. Co., Havelock, Neb.  
 Penn—1, 2—Penn Motors Corp., Philadelphia, Pa.  
 Pierce-Arrow—2, 3, 4, 5, 6, 7½, T.T.—Bus—Pierce-Arrow Motor Car Co., Buffalo, N. Y.  
 Reo—1½—Bus—Reo Motor Car Co., Lansing, Mich.  
 Republic—1½, 1½, 2, 3, 4—Bus—Republic Motor Truck Co., Inc., Alma, Mich.  
 Rowe—2½, 3, 4, 5—Rowe Motor Mfg. Co., Lancaster, Pa.  
 Ruggles—¾, 1½, 1½, 2, 2½—Ruggles Motor Truck Co., Saginaw, Mich.  
 Sandow—1, 1½, 2, 2½, 3½, 5—Sandow Motor Truck Co., Chicago Heights, Ill.  
 Schacht—1½, 2, 2½, 3, 4, 5—G. A. Schacht Motor Truck Co., Cincinnati, Ohio.  
 Selden—1½, 2, 3, 3½, 5—Bus—Selden Truck Corp., Rochester, N. Y.  
 Service—1½, 1½, 2, 3, 4, 6—Service Motors, Inc., Wabash, Ind.  
 Signal—1, 1½, 2½, 3½, 5, 6—Signal Truck Corp., Detroit, Mich.  
 Standard—1½, 1½, 2½, 3½, 5—Standard Motor Truck Co., Detroit, Mich.  
 Sterling—1½, 2, 2½, 3½, 5, 7½—Bus—Sterling Motor Truck Co., Milwaukee, Wis.  
 Stewart—1, 1½, 1½, 2, 2½, 3½—Stewart Motor Corp., Buffalo, N. Y.  
 Transport—1, 1½, 2, 3½, 5—Transport Truck Co., Mt. Pleasant, Mich.  
 Traylor—1½, 2, 3, 5—Traylor Eng. & Mfg. Co., Allentown, Pa.  
 United—1, 1½, 2, 2½, 3, 3½—United Motor Products Co., Grand Rapids, Mich.  
 Walker—½, 1, 2, 3½, 5—Walker Vehicle Co., Chicago, Ill.  
 Ward—750 lb. to 7 Ton—Ward Motor Vehicle Co., Mt. Vernon, N. Y.  
 White—¾, 2, 3½, 5—Bus—White Co., Cleveland, Ohio.  
 Yellow Cab—½, 1—Bus—Yellow Cab Mfg. Co., Chicago, Ill.

## Truck Manufacturers Who Distribute Locally

Acorn—2½—Acorn Motor Truck Co., Chicago, Ill.  
 Ace—1½, 3—Bus—American Motor Truck Co., Newark, Ohio (receiver).  
 Available—1½, 2, 2½, 3½, 5—Available Truck Co., Chicago, Ill.  
 Betz—1, 2½—Betz Motor Truck Co., Hammond, Ind.  
 Brinton—1½, 2½—Brinton Motor Truck Co., Philadelphia, Pa.  
 Buffalo—2, 3—Buffalo Truck and Tractor Corp., Clarence, N. Y.  
 Casco—1—Casco Motors, Inc., Sanford, Me.  
 Chicago—1½, 2½, 3½, 5—Chicago Motor Truck, Inc., Chicago, Ill.  
 Clinton—1½, 2, 3, 4, 5 to 7—Bus—Clinton Motors Corp., Reading, Pa.  
 Columbia—1½, 2½, 3—Columbia Motor Truck Co., Pontiac, Mich.  
 Concord—1, 2, 2½, 3—Abbott-Downing Truck & Body Co., Concord, N. H.  
 Corbitt—¾, 1, 1½, 2, 2½, 3, 4, 5—Corbitt Motor Truck Co., Henderson, N. C.  
 De Martini—1½, 2, 3, 4—De Martini Motor Truck Co., San Francisco, Cal.  
 Diehl—1, 1½—Diehl Motor Truck Works, Philadelphia, Pa.  
 Dixon—1½, 2, 2½, 3½—Dixon Motor Truck Co., Altoona, Pa.  
 Dorris—1, 2½, 3½—Dorris Motor Car Co., St. Louis, Mo.  
 Eagle—1½, 2—Eagle Motor Truck Corp., St. Louis, Mo.  
 Fulton—1, 2—Fulton Motors Corp., Farmingdale, N. Y.  
 G. W. W.—1½, 2—Wilson Truck Mfg. Co., Henderson, Iowa.  
 Grass Premier—1, 1½, 2, 2½, 3½—Grass Premier Truck Co., Sauk City, Wis.  
 Guilder—1½, 2, 3, 4, 5, 6—Bus—Guilder Engineering Co., Poughkeepsie, N. Y.  
 Harvey—2½, 3½, 6, 10—Harvey Motor Truck Co., Harvey, Ill.  
 Hawkeye—1½, 2½, 3½—Hawkeye Truck Co., Sioux City, Iowa.  
 Independent—1, 1½, 2½—Independent Motor Truck Co., Inc., Davenport, Ia.  
 Kalamazoo—Kalamazoo Motor Corp., Kalamazoo, Mich.  
 Kankakee—2½—Kankakee Motor Truck Co., Kankakee, Ill.  
 Kearns—1, 2, 3½, 5—Kearns-Dughe Motors Co., Danville, Pa.  
 Kenworth—1½, 3, 3½—Kenworth Motor Truck Corp., Seattle, Wash.  
 Kimball—2, 2½, 4, 5—Kimball Motors Corp., Los Angeles, Cal.  
 King Zeidler—1, 1½, 2½, 3½, 5—King Zeidler Co., Chicago, Ill.  
 Kleiber—1½, 2½, 3½, 5—Kleiber Motor Truck Co., San Francisco, Cal.  
 Lange—1½, 2½, 3½—Lange Motor Truck Co., Pittsburgh, Pa.  
 Luedinghaus—1, 1½, 2½, 3½, 5—Luedinghaus-Espenschied Wagon Co., St. Louis, Mo.  
 Moreland—1, 1½, 2, 3, 5—Moreland Motor Truck Co., Burbank, Cal.  
 National—1½, 2, 2½, 3, 3½, 4—Bus—National Steel Car Corp., Ltd., Hamilton, Ont., Canada.  
 Nelson-LeMoon—1, 1½, 2½, 3½, 5—Nelson & LeMoon, Chicago, Ill.  
 Netco—2, 2½, 3, 4—New England Truck Co., Fitchburg, Mass.  
 Noble—1, 1½, 2, 2½, 3, 3½, 4—Noble Motor Truck Co., Kendallville, Ind.  
 Ogden—1, 1½, 2½, 3½, 5—Ogden Truck Co., Chicago, Ill.  
 O. K.—1, 1½, 2, 2½, 3½—Nolan Truck Co., Okay, Okla.  
 Old Reliable—2½, 3½, 5, 6—Old Reliable Motor Truck Co., Chicago, Ill.  
 Oneida—2, 2½, 3½, 5—Oneida Manufacturing Co., Green Bay, Wis.  
 Parker—1, 1½, 2, 2½, 3, 3½, 5—Bus—Parker Motor Truck Co., Milwaukee, Wis.  
 Philadelphia Motor Coach—Bus—Phila. Motor Coach Co., Phila., Pa.  
 Pioneer—1—Pioneer Truck Co., Chicago, Ill.  
 Power—1½, 2½, 3½—Power Truck & Tractor Co., St. Louis, Mo.  
 Rainier—¾, 1, 1½, 2, 2½, 3½, 5—Rainier Motor Corp., Long Island City, N. Y.  
 Red Ball—3—Red Ball Transit Co., Indianapolis, Ind.  
 Rumely—1½—Advance Rumely Thresher Co., Laporte, Ind.  
 Sanford—1, 1½, 2½, 3, 4, 5—Sanford Motor Co., Syracuse, N. Y.  
 Saurer—6½, T.T.—Adolph Saurer, Inc., New York, N. Y.  
 Steinmetz—Steinmetz Electric Motor Car Corp., Arlington, Baltimore, Md.  
 Super Truck—2½, 3½, 5—O'Connell Motor Truck Co., Waukegan, Ill.  
 Traffic—1½, 2, 3—Traffic Motor Truck Corp., St. Louis, Mo.  
 Triangle—1, 1½, 2, 2½—Triangle Motor Truck Co., St. Johns, Mich.  
 Twin City—2, 2½—Minneapolis Steel & Machinery Co., Minneapolis, Minn.  
 Union—1½, 2½, 3, 4, 5—Union Motor Truck Co., Bay City, Mich.  
 U. S.—1½, 1½, 2½, 3, 4, 5-7—United States Motor Truck Co., Cincinnati, Ohio.  
 Wachusett—1, 1½, 2, 2½—Wachusett Motors, Inc., Fitchburg, Mass.  
 Walker Johnson—1½, 3—Walker Johnson Truck Co., Woburn, Mass.  
 Walter—T.T.—Walter Truck Co., Long Island City, N. Y.  
 Ward La France—2½, 3½, 5—Ward La France Truck Corp., Elmira, N. Y.  
 Wilcox—1, 1½, 2½, 3½, 5—Wilcox Trux, Inc., Minneapolis, Minn.  
 Witt-Willi—1½, 2, 2½, 3, 4—Witt-Willi Co., Inc., Washington, D. C.

# DETAILED MOTOR

This Table Comprises Motor Bus Chassis Which Are Designed For Other Chassis Which Are Recommended and Adaptable for Bus Use See Models

Line Number	MAKE AND MODEL	GENERAL							ENGINE							ELECTRICAL SYSTEM							NORMAL SPEED	
		Seating Capacity	Chassis Price	Weights			Tread		Make and Model	Number of Cylinders Bore and Stroke	Rated Horse Power N.A.C.C.	Valve Arrangement	Oiling System	Radiator Make	Fuel System	Ignition System Make	Generator and Starter Make	Battery		Voltage and Amp. Hr. Cap.	High W. P. H.	Low M. P. H.		
				Chassis Only	Chassis with Body	Recommended Body Allowance	Wheelbase	Front							Rear				Model					
1	Ace C.	30	5700			204		Mid 400	4-4 1/2 x 6	32.4	H	PC	Own	Zen	V	Eis	Rem	USL	3HVX8X					
2	Acme K.	30	5900	9900	3000	200	58 1/2	Cont 6B	6-3 3/4 x 5	33.7	L	PC	Own	Zen	V	Eis	Del	Wil	SJRT4	6-111	30			
3	Bridgeport 45.	30	3850	5500		178	60	Buda EBU	4-4 1/4 x 5 1/2	28.9	L	PC	Own	Zen	V	Eis	Bos	Wil		6-120				
4	Brookway EB.	25	3200			156	56	Wisc SU	4-4 x 5	25.6	L	PC	G&O	Zen	V	Eis	L-N	Exi		6-105				
5	Brookway J3.	25	4400	9280	2880	185	66 1/2	Cont 6B	6-3 3/4 x 5	33.7	L	PC	Own	Zen	V	Eis	L-N	Exi		12-220	25			
6	Clinton 65B.	30	4075	5925	8700	2725	184	Bud EBU	4-4 1/4 x 5 1/2	28.9	L	PC	Own	Zen	V	Bos	Bos	Pol	611SHK	6-90	30			
7	Commerce 20.	14	4300	7300	3000	189	56	Con 6B	6-3 3/4 x 5	33.7	L	PC	Lon	Zen	V	Bos	Bos	Wil	SJR6	6-177	35			
8	Day-Elder 20.	20	5200		2500	168	56	Cont K4	4-4 1/4 x 5 1/4	27.2	L	FP	Bus	Zen	V	Eis	Bos	Wil	SJRT6	6-153	35			
9	Day-Elder 25.	25	5600		3000	180	58	Buda EBU	4-4 1/2 x 5 1/2	28.9	L	PC	Bus	Zen	V	Eis	Bos	Wil	SJRT6	6-153	35			
10	Day-Elder 30.	30	6000		3500	192	68 1/2	Cont 6B	6-3 3/4 x 5	33.7	L	PC	Bus	Zen	V	Eis	Bos	Wil	SJRT6	6-153	35			
11	Duplex FB.	23	5500		3000	181	58	Buda EBU	4-4 1/4 x 5 1/2	28.9	L	PC	Mod	Zen	V	Eis	Wes	Pol		6-220	35			
12	Fageol Parlor Car.	22	5365	6450	10200	218	70	Has 50	4-4 1/4 x 5 1/2	28.9	I	PC	Lon	Zen	V	Del	Del	Exi		6-240	35			
13	Fageol Street Car.	29	6315	6700	10350	230	70	Has 75	6-4 1/4 x 5 1/2	43.6	I	PC	Lon	Zen	V	Del	Del	Exi		12-240	35			
14	Federal.	18	4200		1800	160	56	Cont 6M	4-3 3/4 x 4 1/2	27.3	L	PC	Lon	Zen	V	Eis	Rem	Exi	3LXRE	6-185	35			
15	Federal.	25	5450		2500	190	60	Cont 6B	4-3 3/4 x 5	33.7	L	PC	Mod	Zen	V	Eis	Rem	Exi	3LXRE	6-185	35			
16	Fifth Ave. J.	29	6900	5660	8235	2575	172	Yell EZ	4-4 x 6	25.6	X	PC	Own	Zen	V	Eis	N-E	Wil	STRN27	12-90	30			
17	Fifth Ave. L.	51	8860	8670		174 1/2	67	Yell EZ	4-4 x 6	25.6	X	PC	Own	Zen	V	Eis	N-E	Wil	STRN27	12-90	30			
18	Garford 51D.	29	6500	9900	3400	187	68	Buda YBU	4-4 1/2 x 6	32.4	L	PC	Own	Str	V	Spl	Rem	Wil	STRN6	6-190	35			
19	Garford 72B.	25	4800	7800	3000	168	56	Buda EBU	4-4 1/4 x 5 1/2	28.9	L	PC	Own	Str	V	Spl	Rem	Wil	STRN6	6-190	35			
20	Gulldur 30.	30	4500	5600	8800	3600	191	Bud EBU	4-4 1/4 x 5 1/2		L	FP	G&O	Zen	V	Eis	L-N	Wil	SJRT28	12-104	30			
21	International 33.	18				150	56	Own 33	4-4 1/4 x 5	22.5	I	Sp	Own	G	Bos	Rem	Pol		6-100	19				
22	International 53.	29				190	64 1/2	Own 53	4-4 1/4 x 5	28.9	I	Sp	Own	G	Bos	Rem	Pol		6-200	34				
23	Kissel.	18	4500	5200	7780	2400	202	Own 4-36	4-4 1/4 x 5 1/2	28.9	L	Sp	Spa	Str	V	Bos	Rem	Wil	SJRT6	6-153	40			
24	Larrabee X-2.	16	1910	3450	4850	1400	155	56	Cont 8R	6-3 3/4 x 4 1/2	27.3	L	PC	Fed	Zen	V	Bos	Bos	Exi	3XE15	6-80	40		
25	Larrabee XH3.	21	3600	4670	7670	3000	186	62	Cont 6B	6-3 3/4 x 5	33.7	L	PC	Fed	Zen	V	Bos	Bos	Exi	36XRE25	6-240	35		
26	Mack AB.	24	4750	6300	11150	4850	230 1/2	68	Own AB	4-4 1/4 x 5	28.9	L	PC	Own	Zen	V	Spl	L-N	Exi	6LXRE13	12-120	41		
27	Mack AB.	25	4250	6100	9350	3250	196	68	Own AB	4-4 1/4 x 5	28.9	L	PC	Own	Zen	V	Spl	L-N	Exi	6LXRE13	12-120	41		
28	Master.	30	6000	9500	3500	194	59	Buda EBU	4-4 1/4 x 5 1/2	28.9	L	PC	Chi	Zen	V	Eis	Wes	Wil		12-	25			
29	Menominee T.	16	2600	4290	6400	2100	175	56	Wisc Y	6-3 3/4 x 5	27.3	H	PC	Own	Zen	V	Bos	Bos	Wil	SJRT6	6-153	38		
30	Menominee DB.	25	4400	6020	9100	3200	186	68	Wisc TAU	4-4 x 6	25.6	L	PC	Own	Zen	V	Eis	Bos	Wil	SJRT6	6-153	32		
31	Moreland RC.	16	2280	3850	5850	2000	180	56	Here OBX	4-4 x 5	25.6	L	PC	Own	Zen	V	Spl	A-L	Hob	6HTXR15A	6-140	25		
32	Moreland EC.	20	3780	4590	7590	3000	178	61	Cont K4	4-4 1/4 x 5 1/4	27.3	L	FP	Own	Sch	V	Spl	Spl	Hob	6HTXR15A	6-140	25		
33	Moreland AC.	25	4700	5660	9160	3500	187	68	Cont L4	4-4 1/2 x 5 1/2	32.5	L	FP	Own	Sch	V	Spl	Spl	Hob	6HTXR15A	6-140	25		
34	Parker B23B.	16	1400	2700	4600	1900	131	58	Buda WTU	4-3 3/4 x 5 1/2	22.5	L	PC	Own	Zen	V	Wes	Wes	Glo	611	6-80	35		
35	Parker E24B.	18	2500	3600	5800	2300	150	58	Wisc SU	4-4 x 5	25.6	I	FP	Own	Zen	V	Wes	Wes	Glo	611	6-80	40		
36	Phila. Motor Coach P.	65	6500	8750	14650	5900	216	72	Own P	6-4 x 6	38.4	I	PC	G&O	Own	P	N-E	N-E	Exi	6MVE13	12-180	25		
37	Pierce-Arrow Z.	30	4750	6400		220	68	Own W	4 x 5 1/2	38.0	T	FP	Own	Own	P	Del	Wes	Wil		6-153	37			
38	Reo W.	21	2350	3650	7150	2500	176	56	Own W	6-3 3/4 x 5	24.3	I	PC	Own	Sch	V	N-E	N-E	Wil	SJRT6	6-109	35		
39	Republic 81.	15				1800	185	60	Lyc	4-3 3/4 x 5		L	FP	Own	Str	V	Bos	Bos	USL		6-109	35		
40	Selden 52.	30	7200	10200	3000	195	68	74	Cont L4	4-4 1/4 x 5 1/2	32.4	L	FP	Lon	Str	V	Bos	N-E	Pol	615KPN	12-	25		
41	Selden.	30	7200	10200	3000	195	68	74	Cont 6B	6-3 3/4 x 5	33.8	L	PC	Lon	Zen	V	Eis	N-E	Pol	615KPN	12-300	35		
42	Sterling GB2.	29	6100	10750	4550	198	64 1/2	58 1/2	Own CU	4-4 1/4 x 5 1/4	30.6	L	PC	Own	Zen	V	Eis	Bos	Gou	ASLR632	6-132	35		
43	White 50A.	25	4950	5395		198	58 1/2	67 3/4	Own 50A	4-4 1/4 x 5 1/2	28.9	L	FP	Own	Zen	V		L-N	Opt		12-			
44	Yellow Coach Z.	67				192	71	73 1/2	Yell EZ	4-4 x 6	25.6	X	PC	Own	Zen	V		L-N	Opt		12-			

\*—Pneumatic  
†—Dual Pneumatic  
‡—Solid  
§—Dual Solid  
A-K—Atwater-Kent  
A-L—Auto-Lite  
Arc—Archibald  
B&B—Borg & Beck  
Bim—Blmel  
B-L—Brown-Lipe  
Bud—Budd  
Buda—Buda

Blo—Blood  
Bos—Bosch  
Bus—Bush  
Cla—Clark  
Col—Columbia  
Cont—Continental  
D—Multiple Dry Disk  
Day—Dayton  
Del—Delco  
E-D—External Driveshaft  
Dtl—Detlaft  
E-R—External Rear Wheel

Eis—Eisemann  
Exi—Exide  
F—Full Floating  
1/2—1/2 Floating  
Fed—Feddars  
Flu—Flint  
Full—Fuller  
FP—Full Pressure to all Bearings, including wrist pins  
G—Gravity  
Glo—Globe  
Gem—Gemmer

G&O—G & O  
Gou—Gould  
Hob—Hobbs  
Hink—Hinkley  
Has—Hall Scott  
Her—Hercules  
I—In Head  
Ig—Internal Gear  
I-F—Internal Four Wheels  
Ind—Indestructible  
I-R—Internal Rear Wheels  
Joh—Johnson

## ELECTRIC COM

Name and Model Number	Total Weight Resting on Four Tires	Chassis Weight—Exclusive of Battery	Minimum Load Capacity	Maximum Load Capacity	Chassis Price	Maximum Speed	Location of Battery	Mileage Per Charge	Motor	Controller	Speeds Forward	Drive	Rear Axle	Springs	Front Tires	Rear Tires	Steering Gear	Wheelbase	Per Cent of Weight on Rear Wheels
Autocar E 1F.					2400				G-E	G-E		R	Own	Row	34x4	34x5	Ross	107	60
Autocar E 2D.					2800				G-E	G-E		R	Own	Row	34x5	34x6	Ross	120	60
Autocar E 3H.					3200				G-E	G-E		R	Own	Row	34x5	36x8	Ross	128	60
Autocar E 4Y.					4000				G-E	G-E		R	Own	Row	34x6	36x8	Ross	138	60
Autocar E 5M.					4300				G-E	G-E		R	Own	Row	36x7	36x7	Ross	138	60
C-T D-1.	5400	2200				14	A	55	G-E	Own	4	Own	Flot	Shel	36x3	36x3½	W	100	69
C-T B-1.5.	6100	2300				14	A	60	G-E	Own	4	Own	Flot	Shel	36x3	36x4	W	91½	65
C-T D-1.5.	6200	2300				14	A	60	G-E	Own	4	Own	Flot	Shel	36x3	36x4	W	116	71
C-T B-2.	7300	2400				14	A	50	G-E	Own	4	Own	Flot	Shel	36x3½	36x5	W	101	66
C-T D-2.	7300	2400				14	A	50	G-E	Own	4	Own	Flot	Shel	36x3½	36x5	W	124	70
C-T B-4.	11750	4000				12	A	50	G-E	Own	4	Own	Flot	Shel	36x4	36x4½	W	116	68
C-T C-6.	14400	4300				10	A	45	G-E	Own	4	I	D	Shel	36x4	36x4½	W	122	70
C-T C-7.	16900	5000				10	A	45	G-E	Own	4	I	D	Shel	36x5	36x5½	W	126	65
C-T A-7.	17700	5800				11	A	45	G-E	Own	4	I	D	Shel	36x6	36x4½	W	122	60
C-T A-10.	22250	6500				10	A	45	G-E	Own	4	I	D	Shel	36x7	36x5½	W	132	59
Kelland AT.	1950		1000	1500		15	S	50	G-E	G-E	4	R	Flot	Mer	34x3	34x3	Ross	102	60
Kelland BT.	2050		1500	2000		15	S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x3½	Ross	102	60
Kelland CT.	2150		2000	2500		15	S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x4	Ross	102	60
Kelland AH.	2500		1000	1500		15	A	45	G-E	G-E	4	C	D	Mer	36x3	36x3	Hin	106	60
Kelland BH.	2600		1500	2000		15	A	45	G-E	G-E	4	C	D	Mer	36x3½	36x3½	Hin	106	60
Kelland CH.	2700		2000	2500		15	A	45	G-E	G-E	4	C	D	Mer	36x3½	36x4	Hin	106	60
Kelland ATS.	2200		1000	1500		15	H&S	50	G-E	G-E	4	R	Flot	Mer	34x3	34x3	Ross	102	60
Kelland BTS.	2300		1500	2000		15	H&S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x3½	Ross	102	60
Kelland CTS.	2400		2000	2500		15	H&S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x4	Ross	114	60
Lansden Century.	1700			1250	1600	15	S	60	G-E	Own	4	R	Flot	SP	32x4½	32x4½	Ross	108	50
Lansden Century.	1950			2000	1850	15	S	60	G-E	Own	4	R	Flot	SP	33x5	33x5	Ross	112	50
Lansden Marathon.	2900			2000	1850	14	A	50	G-E	Own	4	C	D	SP	36x3½	36x4	Bay	108	60



## BUS SPECIFICATIONS

and Sold Exclusively for Passenger Transportation

Having Sign (\$) in the "COMMERCIAL CAR SPECIFICATIONS"

Line Number	TRANSMISSION				REAR AXLE						Front Axle Make and Model	Steering Gear Make	TIRES AND WHEELS				DIMENSIONS (In.)				
	Clutch	Gearset		Universal	Make and Model	Final Drive	Type	Gear Ratio		Service Brake Type & Location			Tires (in.)		Wheels—Make	Rims—Make	Floor Height	Turning Radius	Overall		Clearance from Ground
		Type and Make	Make and Model					Location	Number of Forward Speeds				Make	Total in High					Total in Low	Front	
1	D. B. L.	B. L.	U	4	Tim 6516	Wo	1 1/2	5.4		Tim 1550	Ros	36x6*	36x6*	Bud	Fir	23					
2	P. B. & B.	Cot RU	U	4	Blo	Tim 6511	Wo	6.8	35.3	I-R	Tim 1540B	Ros	36x6*	36x6*	Bud	Fir	27	38	312	90	5
3	D. B. L.	B. L. 50	U	4	Spi	Tim 6560	Wo	6.7		I-R	She Spec	Ros	36x6*	36x6*	Bud	Fir	31 1/2				
4	D. B. L.	B. L. 35	U	4	Spi	Col 52028	SP	5.1		E-R	Col 5084	Gem	30x5*	32x6*	Ind	Fir	28 1/2				
5	D. B. L.	B. L. 55	U	4	Spi	Cl 3D	Ig	7.0		E-D	Shu 610B	Gem	36x6*	36x6*	Sew	Fir	27 1/2	31 1/2	295 1/4	84	10
6	D. B. L.	B. L. 55	U	4	M-E	Tim 6566	Wo	6.5	34.8	I-R	Tim 1544B	Ros	36x6*	36x6*	Bud	Fir	30	37	270	75 1/2	9 1/2
7	D. B. L.	B. L. 55	U	4	Spi	Tim 6460	Wo	6.0			Tim 1452	Ros	32x6	32x6	Bim	Fir	30	27	231	74	9
8	D. B. L.	B. L. 35	U	3	Spi	Tim 6462	Wo	6.5	21.8	I-R	Col 7018	Gem	36x6*	38x7*	Van	Fir	32	30	237	70 1/2	11
9	D. B. L.	B. L. 51	U	4	Spi	Tim 6566	Wo	6.7	36.1	I-R	Tim 1544	Gem	36x6*	40x8*	Van	Fir	32	30	260	75 1/2	11
10	D. B. L.	B. L. 51	U	4	Spi	Tim 6511S	Wo	6.8	36.4	I-R	Shu 610	Gem	36x6*	36x6*	Van	Fir	25	27	271 1/2	90	6 1/2
11	D. B. L.	B. L.	U	4	Pet	Vul 4	Wo	6.5	32.1	I-R	Shu	Ros	34x5	34x5*	Mot	Fir	27	28	268	82	9
12	D. B. L.	B. L. 50	U	4	Spi	Tim 6466	Wo	4.6	19.7	I-R	Tim 1524	Ros	36x6*	36x6*	Bud	.....	19 1/2	38	312	89	7 1/2
13	D. B. L.	B. L. 55	U	4	Spi	Tim 6466	Wo	4.6	19.7	I-R	Tim 4550	Ros	36x6	38x7	Bud	Fir	20 3/4	38 1/2	324	89	7 1/2
14	P. B. & B.	Own	U	4	Spi	Tim 6460	Wo	6.5	32.5	-R	Own	Gem	35x5*	34x7*	Smi	Fir	28	28	245		10
15	P. B. & B.	Det R400	U	4	Spi	Tim 6560	Wo	6.7	39.8		Own	Gem	36x6*	36x8*	Smi	Fir	30	28	266 1/2		10
16	P. Own	Own J	U	4	Sne	Tim 6412	Wo	5.4	21.6	I-R	Tim 1523	Ros	34x5	34x7	Own	.....	29 1/2	31	277	87 1/2	7
17	P. Own	Own L	U	4	Sne	Own L	Ig	6.6		E-D	Own L	Ros	36x5	36x5	Own	Fir	26	30	295	91	7
18	D. Own	Own 51D	U	4	Spi	Tim 6511G	Wo	5.4	26.1	I-R	Tim 1550	Ros	36x6*	36x6*	Day	Fir	28 1/2	30	295	91	7
19	D. Own	Own 726	U	4	Spi	Tim 6560	Wo	5.4	26.1	I-R	Own	Ros	32x6*	32x6*	Bud	Fir	32	30	236	75 1/2	7 1/2
20	D. B. L.	B. L. 51	U	4	M-E	Wis 68C	R	5.8		E-D	Shu 5550B	Ros	36x6	36x6*	Bud	.....	26	70	300	83	11
21	D. Own	Own 33	U	3	Own	Own 33	Ig	.....		I-R	.....	Own	36x4	36x6	Own	.....	34 1/2	.....	.....	76	8
22	D. Own	Own 53	U	4	Own	Own 53	Ig	.....		I-F	.....	Own	36x6*	36x6*	Bud	.....	34 1/2	.....	.....	76	8
23	D. B. L.	B. L. 35	U	4	Spi	Wis 60B	R	5.8	19.0	-R	Shu 610	Ros	34x7*	34x7*	Whi	Gdy	24	24	252	70	8
24	D. B. L.	B. L. 31	U	3	Sne	Sal D	Be	7.7	27.6	E-R	Sal	Gem	34x5	34x5	Ind	Fir	29	27	220	70	11
25	D. B. L.	B. L. 31	U	3	Spi	She	W	5.5	26.4	I-R	Shu 5550B	Ros	32x6	32x6*	Bud	.....	25	28	262	86	9
26	D. Own	Own AB	U	4	Spi	Own AB	R	6.7	21.5	I-R	Own AB	Own	36x6*	36x6*	Bud	.....	28 1/2	32 1/2	310	84	8 1/2
27	D. Own	Own AB	U	4	Spi	Own AB	R	6.7	21.5	I-R	Own AB	Own	32x6*	32x6*	Bud	.....	24 1/2	28 1/2	304	88	6 1/2
28	D. Ful	Ful GU7	U	4	Spi	Wal 25A	R	7.6	37.0	-R	Shu 610	Ros	36x6	40x8	StM	Fir	26	33 1/2	.....	.....	.....
29	D. Det	Cot AAU	U	3	Spi	Wis 40R	R	.....		I-R	.....	Ros	32x6*	32x6*	Whi	.....	23 1/2	.....	.....	.....	.....
30	D-Det	Cot AU	U	4	Spi	Wis 120K	R	6.1	32.0	I-R	Tim 1550	Ros	36x6*	36x6*	Ind	Fir	26	30	256	86	10
31	D. B. L.	B. L. 30	U	4	Pet	Tim 5512	Wo	5.5	22.0	E-R	Tim 1250	Ros	32x6	32x6	Own	Gdy	23 1/2	.....	.....	.....	7 1/2
32	D. B. L.	B. L. 51	U	4	Pet	Tim 6410	Wo	6.0	32.1	I-R	Tim 1550	Ros	34x5*	34x5*	Bud	.....	24 1/2	.....	.....	.....	8 1/2
33	D. B. L.	B. L. 51	U	4	Pet	Tim 6511	Wo	6.0	32.1	I-R	Tim 1550	Ros	36x6*	36x6*	Bud	.....	25 1/2	.....	.....	.....	9
34	D. Ful	Ful SU2	U	3	Blo	Fli 72BA	Be	5.5	22.0	E-R	Fli 72BA80	Lav	32x6*	32x6*	Whi	Fir	30	21	204	66	10
35	D. Ful	Ful SU2	U	3	Blo	Fli 72BA	Be	4.9	20.0	E-R	Con 600	Lav	32x6*	32x6*	Whi	Fir	28	25	218	66	10
36	D. B. L.	B. L. 60	U	4	Spi	Atl LC-IR	Be	7.0	28.0	-R	Shu 650B	Ros	34x6*	34x6*	Ind	.....	20 1/2	25	333 1/2	90	8
37	Own	Own W	U	4	Spi	Own W	Wo	6.0	32.0	-D	Own W	Own W	36x6	36x6*	Bud	.....	28	40	303	89	8
38	Own	Own W	U	3	Own	Own W	SP	5.7	21.0	E-R	Own W	Own W	30x5	30x5*	Bud	.....	25 1/2	31	197	87	8
39	Ful	Ful	U	3	Spi	Tor	Ig	6.2	25.0	E-D	Own	Jac	34x7	34x7	Van	Fir	21	.....	270 1/2	67 1/2	6 1/2
40	D. B. L.	B. L.	U	4	Spi	Tim	Wo	7.7	31.0	I-R	Tim	Gem	36x5	36x5	Arc	Fir	29 1/2	33	309	91	7
41	D. B. L.	B. L.	U	4	Spi	Tim	Wo	7.7	31.0	-R	Tim	Gem	36x5	36x5	Arc	Fir	29 1/2	33	309	91	7
42	D. B. L.	B. L. 50	U	4	Spi	Tim 6566	Wo	5.4	28.9	I-R	Tim 1544B	Ros	36x6*	36x6*	Bud	.....	34 1/2	.....	.....	.....	10 1/2
43	Own	Own 50A	U	4	Spi	Own 50A	R	5.6	23.3	-R	Own 50A	Own	36x6	36x6*	Bud	Fir	28 1/2	36	274 1/4	81 1/2	9 1/2
44	P. Own	Own 2	U	4	.....	Own Z	Wo	6.2		I-F	.....	Own	34x5*	34x5*	.....	.....	.....	.....	.....	.....	.....

Kel—Kells  
L—L-Head  
Lav—Lavine  
L-N—Leece Neville  
Lon—Long  
M&E—Merchant & Evans  
McC—McCord  
Mot—Motor Wheel Corp.  
N-E—North-East  
NP—No Provision  
Opt—Optional  
P—Single Plate

Pet—Peters  
PC—Pressure to all Crankshaft  
& connecting Rod Bearings—  
Splash to other parts  
Pol—Frest-O-Lite  
R—Double Reduction  
Ros—Ross  
Rem—Remy  
R&V—R. & V Knight  
Sal—Salisbury  
Sew—Sewell  
Sne—Snead

SP—Spiral Bevel  
S—Separate Unit  
Spi—Spicer  
She—Sheldon  
Spa—Sparton  
StM—St. Marys  
Shu—Shuler  
Str—Stromberg  
Sp—Splash  
Tim—Timken  
U—Unit with Engine

Van—Van Motor Wheels  
V—Vacuum  
Wal—Walker  
Whi—Whitcomb  
Wes—Westinghouse  
Wil—Willard  
Wis—Wisconsin  
Wis—Wisconsin  
Wo—Worm  
X—Sleeve Valve  
Yel—Yellow  
Zen—Zenith

## MERCIAL CARS

Name and Model Number	Total Weight Resting on Four Tires	Chassis Weight Exclusive of Battery	Minimum Load Capacity	Maximum Load Capacity	Chassis Price	Maximum Speed	Location of Battery	Mileage Per Charge	Motor	Controller	Speeds Forward	Drive	Rear Axle	Springs	Front Tires	Rear Tires	Steering Gear	Wheelbase	Per Cent of Weight on Rear Wheels
Lansden Marathon	4400	.....	4000	2250	13	A	50	G-E	Own	4	C	D	SP	36x4	36x3½	Bay	120	60	
Lansden Marathon	5700	.....	7000	2950	11	A	45	G-E	Own	4	C	D	SP	36x5	36x5½	Bay	133	60	
Lansden Marathon	7500	.....	10000	3350	10	A	40	G-E	Own	4	C	D	SP	36x6	36x6½	Bay	146	60	
O. B. B.	.....	.....	.....	.....	13	.....	.....	G-E	Own	.....	C	D	.....	36x4	36x3½	Own	107	.....	
O. B. C.	.....	.....	.....	.....	11	.....	.....	G-E	Own	.....	C	D	.....	36x5	36x4	Own	135	.....	
O. B. D.	.....	.....	.....	.....	10	.....	.....	G-E	Own	.....	C	D	.....	36x6	36x5	Own	143	.....	
Steinmets 10.	2000	.....	.....	.....	16	H&S	52	Diehl	Own	4	R	Russ	Shel	32x4½	32x4½	Lav	106	60	
Steinmets 15.	2300	.....	.....	.....	16	H&S	55	Diehl	Own	4	R	Russ	Shel	33x5	33x5	Lav	114	60	
Walker 12.	1900	.....	1000	.....	15	H&S	50	G-E	West	4	.....	.....	Tim	Det	32x3	32x3½	Ross	104	66
Walker 15.	2600	.....	1500	.....	14	A	50	West	West	5	Own	Own	Math	34x3	36x3½	Ross	94	66	
Walker 22.	2800	.....	2000	.....	15	A	50	West	West	5	Own	Own	Math	34x3½	36x4	Ross	101	66	
Walker 42.	3500	.....	4000	.....	13	A	50	West	West	5	Own	Own	Math	36x4	36x5	Ross	114	66	
Walker P.	5600	.....	7000	.....	11	A	40	West	West	5	Own	Own	Math	36x5	38x5½	Ross	131	66	
Walker N.	6400	.....	10000	.....	10	A	40	West	West	5	Own	Own	Math	36x6	38x6½	Ross	141	66	
Walter HD.	6800	.....	2000	2200	16	A	60	Diehl	G-E	5	B	.....	.....	32x3½	32x4	Ross	98	60	
Walter EN.	13200	4400	.....	5000	3100	15	A	50	G-E	G-E	5	Own	D	.....	36x4	36x7	Gem	114	60
Walter EL.	16800	5000	.....	7000	3700	13½	A	50	G-E	G-E	5	Own	D	.....	36x5	36x4	Gem	132	60
Walter ES.	23600	7200	.....	11000	4500	12	A	50	G-E	G-E	5	Own	D	.....	36x6	40x6	Ross	150	70
Walter ER.	28400	7500	.....	15000	4800	11	A	50	G-E	G-E	5	Own	D	.....	36x7	40x7	Ross	150	70
Ward A211	4500	1650	550	1150	.....	15	S	75	G-E	Own	4	W	Shel	Shel	32x4*	33x4½*	Own	88	56
Ward B-222.	6000	2300	1010	1700	.....	14	S	84	G-E	Own	4	W	Shel	Shel	32x3½*	32x4*	Own	91	62
Ward C-211.	8000	2670	2170	2880	.....	13	S	65	G-E	Own	4	W	Shel	Shel	32x3½*	34x5*	Own	96	64
Ward E-211.	12000	3570	4480	5430	.....	12½	S	56½	G-E	Own	4	W	Shel	Shel	34x4*	36x6*	Own	108	65
Ward G-211.	16000	4500	6560	7760	.....	11	S	44	G-E	Own	5	W	Shel	Shel	36x5*	36x8*	Own	120	68
Ward J-211.	22500	6630	8580	11200	.....	10	S	39½	G-E	Own	5	W	Shel	Shel	36x6*	36x10*	Own	136	70
Ward M-211.	30000	8430	13780	15920	.....	9	S	36	G-E	Own	5	W	Shel	Shel	36x7*	36x17	Own	152	71

# Replacement Table—Corrected Monthly

Including Piston Ring Sizes, Carburetor Sizes, Hose Sizes, Fan Belt Sizes, Brake Lining Sizes and Truck Frame Dimensions

★ Note: Under Carburetor Inlet Diameter Will be Found Either the Size of Main Air Intake or the Gasoline Fuel Line  
Fan Belt Type: V—V-Shape, F—Flat, R—Round

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING								FRAME						
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service				Emergency				Length		Width				
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter ★	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Ace 40-1½	3	1	1	1	V	7	1½	8	1½	40½	2	F	12	3½	1	4	12	3½	1	4	122½	76½	215½	32	9
Ace 60-3	3	1	1	1	V	10	2	15	1½	42½	2	F	13½	3½	1	4	13½	3½	1	4	Opt	84½	241	34	9½
Acme 20L-1½	3	1	1	1	V	7	1½	11	1½	34	1	F	12	3	1	4	12	3	1	4	108½	63½	200	34	10½
Acme 40-2	4	1	1	1	V	8	1½	11	1½	40	1	F	12	3	1	4	12	3	1	4	123½	74½	208	34	9½
Acme 40L-2	4	1	1	1	V	11½	1½	12½	1½	39½	1	F	12	3½	1	4	12	3½	1	4	123½	74½	214½	34	9½
Acme 60-3	4	1	1	1	V	11½	1½	12½	1½	39½	1	F	13	3½	1	4	13	3½	1	4	132½	79½	223½	34	10
Acme 60L-3	4	1	1	1	V	11½	1½	12½	1½	41½	1	F	13	3½	1	4	13	3½	1	4	140½	79½	235½	34	10
Acme K (Bus)	3	1	1	1	V	12½	1½	12½	1½	34½	1	F	15½	3½	1	4	15½	3½	1	4	220½	127½	312	41½	6
Acme 90-4½	4	1	1	1	V	10	1½	12	1½	41½	1	F	15½	3½	1	4	15½	3½	1	4	150½	95½	243	36	10½
Acme 90L-4½	4	1	1	1	V	10	1½	10	1½	40½	1	F	15½	3½	1	4	15½	3½	1	4	153½	96½	255	37	10½
Acme 125-6½	4	1	1	1	V	10	1½	10	1½	40½	1	F	18	4	1	4	18	4	1	4	159½	99½	261	37	10
American-LaFrance 2R	3	1	1	1	V	11½	1½	9	1½	40½	2	F	17	3½	1	4	17	3½	1	4	132	81½	244½	33	10
American-LaFrance 2R	3	1	1	1	V	11½	1½	9	1½	40½	2	F	17	3½	1	4	17	3½	1	4	156	98½	268½	33	10
American-LaFrance 2R	3	1	1	1	V	11½	1½	9	1½	40½	2	F	17	3½	1	4	17	3½	1	4	180	110½	292½	33	10
American-LaFrance 3R	3	1	1	1	V	11½	1½	9	1½	42	2	F	11½	8	1	4	11½	8	1	4	144½	89½	244½	35½	9
American-LaFrance 3R	3	1	1	1	V	11½	1½	9	1½	42	2	F	11½	8	1	4	11½	8	1	4	168½	103½	268½	35½	9
American-LaFrance 3R	3	1	1	1	V	11½	1½	9	1½	42	2	F	11½	8	1	4	11½	8	1	4	210½	125½	309½	35½	9
American-LaFrance 5R	3	1	1	1	V	11½	1½	9	1½	42	2	F	11½	8	1	4	11½	8	1	4	144½	90½	243	36	10
American-LaFrance 3R	3	1	1	1	V	11½	1½	9	1½	42	2	F	11½	8	1	4	11½	8	1	4	192½	114½	291½	35½	9
American-LaFrance 5R	3	1	1	1	V	11½	1½	9	1½	42	2	F	11½	8	1	4	11½	8	1	4	210½	125½	309½	36	10
Armleder 30-1½	3	1	1	1	V	10	1½	16½	1½	33½	2	F	11½	8	1	4	11½	8	1	4	Opt	71½	215½	32	9½
Armleder 50-2½	4	1	1	1	V	12	2	17½	1½	35½	2	F	13	3½	1	4	13	3½	1	4	Opt	77½	228½	32	10
Atterbury 24-R	4	1	1	1	V	10½	1½	16	1½	38½	1	V	11½	3½	1	4	11½	3½	1	4	119½	76	211½	34	9½
Atterbury 22C-2½	4	1	1	1	V	10½	1½	16	1½	40½	1	V	13	3½	1	4	13	3½	1	4	129½	78½	225	34	9½
Atterbury 22D-3½	4	1	1	1	V	10½	1½	16	1½	40½	1	V	15	3½	1	4	15	3½	1	4	142½	93½	242	37½	8½
Atterbury 24E	4	1	1	1	V	10½	1½	16	1½	42½	1	F	17½	4	1	4	17½	4	1	4	159½	89½	263	37½	8½
Autocar XXI-F-1½	4	1	1	1	V	5	1½	9½	1½	.....	.....	.....	16½	2½	1	4	13½	2½	1	4	91	67	156	34	9½
Autocar XXI-G-1½	4	1	1	1	V	5	1½	9½	1½	.....	.....	.....	16½	2½	1	4	13½	2½	1	4	114	90	179	34	9½
Autocar XXVI-M4-6	3	1	1	1	V	3½	1½	3½	1½	49½	2	F	25½	2½	1	4	25½	2½	1	4	139½	80½	223½	34½	10
Autocar XXVI-L4-6	3	1	1	1	V	3½	1½	3½	1½	49½	2	F	25½	2½	1	4	25½	2½	1	4	175½	116½	256½	34½	10
Autocar XXVII-H3	3	1	1	1	V	3½	1½	3½	1½	47½	2	F	22½	2	1	4	22½	2	1	4	131½	76	213	34½	10½
Autocar XXVII-K3	3	1	1	1	V	3½	1½	3½	1½	47½	2	F	22½	2	1	4	22½	2	1	4	155½	100	237	34½	10½
Available J-H-1½	4	1	1	1	V	11	1½	14	1½	40	2	F	48	2½	1	4	36	2½	1	4	120	80½	201½	32	9
Available J-H2	4	1	1	1	V	12	1½	14	1½	40	2	F	48	2½	1	4	36	2½	1	4	120	84½	212	32	9
Available J-H-2½	3	1	1	1	V	11	1½	14	1½	40	2	F	13½	3	1	4	13½	3	1	4	144	85½	226½	32	9
Available J-H3½	4	1	1	1	V	12	1½	14	1½	42	2	F	16	3½	1	4	16	3½	1	4	168	106½	254½	36	9
Available J-H5	3	1	1	1	V	12	2	16	2	40	2	.....	18	4	1	4	18	4	1	4	168	112½	263½	38	9
Besemer G-1	3	1	1	1	V	11½	2½	10	2½	42	1	V	46	2½	1	4	44	2½	1	4	98½	58½	182½	34	.....
Besemer H-2-1½	3	1	1	1	V	12	1½	10	2½	43	1	V	16½	2	1	4	16½	2	1	4	116	76	203	34	.....
Besemer J2-2½	3	1	1	1	V	12	1½	5	1½	36½	1	V	18½	2½	1	4	18½	2½	1	4	142½	92½	229	34	.....
Besemer K2-4	3	1	1	1	V	11½	2½	10	2½	39½	1	V	55	3½	1	4	33	4½	1	4	157½	108	249	38	.....
Bethlehem KN-1	3	1	1	1	V	8½	2½	8	2½	35½	1	F	20½	1½	1	4	20½	1½	1	4	89½	56½	175	32	10½
Bethlehem GN-2	3	1	1	1	V	8½	2½	9½	2½	40½	1	F	51	2½	1	4	37	2½	1	4	116½	74	208½	34½	9½
Bethlehem L	3	1	1	1	V	8½	2½	9½	2½	40½	1	F	51	2½	1	4	37	2½	1	4	134½	81½	226½	34½	8½
Betz J3-1	3	1	1	1	V	12	1½	17	1½	33½	1	F	11	3	1	4	11	3	1	4	126	90	215	34	10
Betz D3-2½	3	1	1	1	V	12	1½	12	1½	33½	1	F	12	3½	1	4	12	3½	1	4	Opt	.....	.....	34	.....
Brinton C-1½	3	1	1	1	V	11	1½	13	1½	33	1	F	39	2½	1	4	38	2½	1	4	118	.....	.....	33	.....
Brinton D-2½	3	1	1	1	V	11	1½	13	1½	33	1	F	13	3½	1	4	13	3½	1	4	135½	.....	.....	33	.....
Brockway S-12-1½	3	1	1	1	V	10½	2½	5½	2½	39	1	F	10	3½	1	4	10	3½	1	4	118	72	118½	32	.....
Brockway K-11-2½	4	1	1	1	V	6½	1½	13	1½	34	1	F	13	3½	1	4	13	3½	1	4	142	89½	123½	34	.....
Brockway R-12-3½	4	1	1	1	V	9½	1½	14	1½	34	1	F	15½	3½	1	4	15½	3½	1	4	176	102½	175	36	.....
Brockway T-6-5	4	1	1	1	V	13	2	22	2	40½	2	F	17½	4	1	4	17½	4	1	4	176	104½	176	36	.....
Buffalo 9, 6	4	1	1	1	V	7	1½	13	1½	41½	2	F	21	2½	1	4	21	2½	1	4	124	82½	224	34	9½
Casco A-1	4	1	1	1	V	12	1½	14½	1½	34½	1	F	48½	2½	1	4	48	2½	1	4	104	61	192½	34	10
Chevrolet Sup. Com. Chassis	3	1	1	1	V	7½	1½	5	1½	29½	1	V	37	2	1	4	28½	1½	1	4	Opt	Opt	106½	38½	9½
Chevrolet Utility Exp.	3	1	1	1	V	7½	1½	5	1½	29½	1	V	37	2	1	4	28½	1½	1	4	Opt	Opt	156½	37	10
Chicago 20-1½	4	1	1	1	V	12	1½	15	1½	34½	1	F	21	2½	1	4	10	2	1	4	141				



## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE											BRAKE LINING								FRAME						
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length			Width		
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter *	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis	
Clydesdale 10A-1-3/4-1 1/4	3	1 1/4	1 1/4	1 1/4	V	9	2	9	2	41	3 1/4	V	11 1/4	2 1/4	1 1/4	4	11 1/4	2 1/4	1 1/4	4	109	Opt	Opt	Opt	34	10
Columbia H-1 1/2	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	12	1 1/4	39	1 1/4	F	23	2 1/4	1 1/4	4	23	2 1/4	1 1/4	4	Opt	Opt	Opt	32 1/2	9	
Columbia G-2 1/2	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	12	1 1/4	39	1 1/4	F	26	2 1/4	1 1/4	4	26	2 1/4	1 1/4	4	Opt	Opt	Opt	32 1/2	9	
Columbia K-3	3	1 1/4	1 1/4	1 1/4	V	11	1 1/4	13	1 1/4	44	2	F	26	2 1/4	1 1/4	4	26	2 1/4	1 1/4	4	Opt	Opt	Opt	32 1/2	9	
Commerce 11-2000	3	1 1/4	1 1/4	1 1/4	V	10	2	10	2	44	1 1/2	F	50	2	2	2	48 1/2	3 1/4	1 1/4	4	92 3/8	53 3/8	193	34	8 1/2	
Commerce 14B-3000	4	1 1/4	1 1/4	1 1/4	V	9 1/2	1 1/4	15 1/2	1 1/4	39 3/4	1 1/2	F	11 1/4	3 1/4	1 1/4	4	11 1/4	3 1/4	1 1/4	4	117	75	210	34	9	
Commerce 25B-5000	4	1 1/4	1 1/4	1 1/4	V	10	1 1/4	15 1/2	1 1/4	42	1 1/2	F	13	3 1/4	1 1/4	4	13	3 1/4	1 1/4	4	132	84	228 1/2	34	12 1/2	
Concord E-1	4	1 1/4	1 1/4	1 1/4	V	7	1 1/4	9 1/2	1 1/4	33 1/4	2	F	12	3 1/4	1 1/4	4	12	3 1/4	1 1/4	4	103	59	196	34	11 1/2	
Concord G-2	4	1 1/4	1 1/4	1 1/4	V	7	1 1/4	9 1/2	1 1/4	33 1/4	2	F	13 1/2	3 1/4	1 1/4	4	13 1/2	3 1/4	1 1/4	4	104	62	198	34	11 1/2	
Concord H-2	4	1 1/4	1 1/4	1 1/4	V	7	1 1/4	9 1/2	1 1/4	33 1/4	2	F	12	3 1/4	1 1/4	4	12	3 1/4	1 1/4	4	110	72	206	34	10	
Concord J-2 1/2	4	1 1/4	1 1/4	1 1/4	V	7	1 1/4	9 1/2	1 1/4	33 1/4	2	F	13 1/2	3 1/4	1 1/4	4	13 1/2	3 1/4	1 1/4	4	132	78	230	35	10 1/2	
Concord JL-3	4	1 1/4	1 1/4	1 1/4	V	7	1 1/4	9 1/2	1 1/4	33 1/4	2	F	13 1/2	3 1/4	1 1/4	4	13 1/2	3 1/4	1 1/4	4	136	78	232	35	10 1/2	
Corbitt S-3/4	4	1 1/4	1 1/4	1 1/4	V	8	2	14	2	41	1 1/2	F	16 1/4	2 1/4	1 1/4	4	16 1/4	2 1/4	1 1/4	4	153	92	254	35	10 1/2	
Corbitt E-1	3	1 1/4	1 1/4	1 1/4	V	9	2	12	2	46	1 1/2	F	18	2 1/4	1 1/4	4	18	2 1/4	1 1/4	4	168	106	266	35	9	
Corbitt D-1 1/2	3	1 1/4	1 1/4	1 1/4	V	11	1 1/4	15	1 1/4	46	1 1/2	F	22 1/4	2 1/4	1 1/4	4	22 1/4	2 1/4	1 1/4	4	168	106	268	38	10	
Corbitt C-2	3	1 1/4	1 1/4	1 1/4	V	13	1 1/4	15	1 1/4	46	1 1/2	F	22 1/4	2 1/4	1 1/4	4	22 1/4	2 1/4	1 1/4	4	168	106	268	35	9	
Corbitt B-2 1/2	3	1 1/4	1 1/4	1 1/4	V	13	1 1/4	15	1 1/4	46	1 1/2	F	22 1/4	2 1/4	1 1/4	4	22 1/4	2 1/4	1 1/4	4	168	106	268	35	9	
Corbitt R-2 1/2-3	3	1 1/4	1 1/4	1 1/4	V	14	1 1/4	8	1 1/4	46	1 1/2	F	22 1/4	2 1/4	1 1/4	4	22 1/4	2 1/4	1 1/4	4	168	106	268	35	9	
Corbitt A-3 1/2-4	3	1 1/4	1 1/4	1 1/4	V	14	1 1/4	8	1 1/4	46	1 1/2	F	22 1/4	2 1/4	1 1/4	4	22 1/4	2 1/4	1 1/4	4	168	106	268	35	9	
Corbitt AA-5	3	1 1/4	1 1/4	1 1/4	V	13	2	14	2	46	2	F	61	3	2	2	68 1/4	3	3/4	2	168	106	268	38	10	
Day-Elder AN-1 1/2	3	1 1/4	1 1/4	1 1/4	V	6 3/4	1 1/4	7	1 1/4	34 3/4	1 3/8	F	10 1/4	3	1/4	4	10 1/4	3	1/4	4	106 1/2	62 1/2	191	35	...	
Day-Elder BN-2	3	1 1/4	1 1/4	1 1/4	V	4	1 1/4	12 1/2	1 1/4	41	1 1/4	F	11 1/4	3 1/4	1/4	4	11 1/4	3 1/4	1/4	4	118 1/2	78 1/2	202 1/2	35	...	
Day-Elder DN-2 1/2	3	1 1/4	1 1/4	1 1/4	V	4	1 1/4	12 1/2	1 1/4	41	1 1/4	F	13 1/4	3 1/4	1/4	4	13 1/4	3 1/4	1/4	4	122 1/2	72 1/2	212 1/2	35	...	
Day-Elder CN-3	3	1 1/4	1 1/4	1 1/4	V	10 1/2	2	12	1 1/4	37	2	F	13 1/4	3 1/4	1/4	4	13 1/4	3 1/4	1/4	4	123 1/2	73 1/2	216	35	...	
Day-Elder FN-4	3	1 1/4	1 1/4	1 1/4	V	7 1/2	1 1/4	12 1/2	1 1/4	43	1 3/8	F	15 1/4	3 1/4	1/4	4	15 1/4	3 1/4	1/4	4	120 1/2	81 1/4	214 1/2	35	...	
Day-Elder EN-5-6	4	1 1/4	1 1/4	1 1/4	V	12 1/2	2	12 1/2	1 1/4	38	2	F	17 1/4	4	1/4	4	17 1/4	4	1/4	4	154	94	253	37	...	
Defiance G2-1 1/4	3	1 1/4	1 1/4	1 1/4	V	10	2	8	2	40	1 1/4	F	20	1 1/4	1 1/4	4	20	1 1/4	1 1/4	4	90	56	179 1/2	34	...	
Defiance GL2-1 1/4	3	1 1/4	1 1/4	1 1/4	V	10	2	8	2	40	1 1/4	F	20	1 1/4	1 1/4	4	20	1 1/4	1 1/4	4	119 1/2	76 1/2	203	34	...	
Defiance D-2-1 1/2	3	1 1/4	1 1/4	1 1/4	V	10	2	8	2	40	1 1/4	F	20	1 1/4	1 1/4	4	20	1 1/4	1 1/4	4	119 1/2	76 1/2	203	34	...	
Defiance E2-2	3	1 1/4	1 1/4	1 1/4	V	10	2	8	2	40	1 1/4	F	45	2 1/2	1 1/4	1	43	2 1/2	1 1/4	1	119 1/2	76 1/2	203	34	...	
Defiance EL-2-2	3	1 1/4	1 1/4	1 1/4	V	10	2	8	2	40	1 1/4	F	52	2 1/2	1 1/4	1	37	2 1/2	1 1/4	1	136 1/2	93 1/2	220	34	...	
Defiance HL-2-3	3	1 1/4	1 1/4	1 1/4	V	11 3/4	1 1/2	9	1 1/2	42 1/2	1 1/2	F	61	2 1/2	1 1/4	1	47	2 1/2	1 1/4	1	125 1/2	82 1/2	220	34	...	
Defiance H-3	3	1 1/4	1 1/4	1 1/4	V	11 3/4	1 1/2	9	1 1/2	42 1/2	1 1/2	F	61	2 1/2	1 1/4	1	47	2 1/2	1 1/4	1	143 1/2	100 1/2	238	34	...	
Diamond T-75-1-1	3	1 1/4	1 1/4	1 1/4	V	8	1 1/2	10 1/2	1 1/4	33 1/4	1 1/4	F	22	2 1/4	1 1/4	2	46 3/4	2 1/4	1 1/4	1	90	57 1/2	182 1/2	34	...	
Diamond T-03-1-1 1/4	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	6	1 1/4	35	2	F	48	2 1/4	1 1/4	2	33	2 1/4	1 1/4	2	100	...	...	34	...	
Diamond T-T-1 1/4	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	6	1 1/4	35	2	F	11 1/2	3 1/4	1 1/4	4	11 1/2	3 1/4	1 1/4	4	Opt	...	...	34	...	
Diamond T-U2-2 1/2	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	8	1 1/4	35	2	F	13 1/4	3 1/4	1 1/4	4	13 1/4	3 1/4	1 1/4	4	Opt	...	...	34	...	
Diamond TK-3 1/2	3	1 1/4	1 1/4	1 1/4	V	10	1 1/2	10	1 1/2	35	2	F	15 1/4	3 1/4	1 1/4	4	15 1/4	3 1/4	1 1/4	4	Opt	...	...	37	...	
Diamond T-S-5	3	1 1/4	1 1/4	1 1/4	V	9	2	21	2	40 3/8	2	F	18	4	1 1/4	4	17 1/4	4	1 1/4	4	Opt	...	...	37	...	
Diehl A	4	1 1/4	1 1/4	1 1/4	V	11	1 1/2	8	1 1/2	41	...	F	28	2 1/4	1 1/4	2	27	2 1/4	1 1/4	2	90	48	174	34 1/2	11 1/2	
Dixon Model D	4	1 1/4	1 1/4	1 1/4	V	11	1 1/2	9	1 1/2	42	...	F	13	3 1/2	1 1/4	4	13	3 1/2	1 1/4	4	126	71	221 1/2	34 1/2	9 1/2	
Dixon Model C	4	1 1/4	1 1/4	1 1/4	V	11	1 1/2	9	1 1/2	42	...	F	13	3 1/2	1 1/4	4	13	3 1/2	1 1/4	4	Opt	71	221 1/2	34 1/2	9 1/2	
Dixon Model A	4	1 1/4	1 1/4	1 1/4	V	12	1 1/2	10	1 1/2	42	...	F	13	3 1/2	1 1/4	4	13	3 1/2	1 1/4	4	Opt	71	221 1/2	36	9 1/2	
Dodge Brothers-3/4	4	1 1/4	1 1/4	1 1/4	V	9	1 1/2	7 1/4	1 1/4	34 1/2	1	F	19 1/4	2 1/4	1 1/4	4	14 3/4	1 1/4								

## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE											BRAKE LINING								FRAME					
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length		Width		
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
G.M.C. K-101	4	1 1/4	1 1/4	1 1/8	V	11 3/4	1 3/4	9 1/4	1 3/4	35 3/4	3 3/4	V	17 3/4	4	1 1/4	4	17 3/4	4	1 1/4	4	Opt	Opt	Opt	38	9 3/4
Gotfredson 21B-1	4	1 1/4	1 1/4	1 1/8	V	10 1/4	1 3/4	10 1/4	1 3/4	32 1/4	1 1/2	V	42 1/4	3 3/4	1 1/4	4	11	2	1 1/4	2	88	56 1/2	181 1/4	32 1/2	8 1/2
Gotfredson 30-1 1/2	4	1 1/4	1 1/4	1 1/8	V	10 1/4	1 3/4	10 1/4	1 3/4	32 1/4	1 1/2	V	42 1/4	3 3/4	1 1/4	4	11	2	1 1/4	2	120	69 1/2	213 1/4	32 1/2	8 1/2
Gotfredson 40-2	4	1 1/4	1 1/4	1 1/8	V	10 1/4	1 3/4	10 1/4	1 3/4	32 1/4	1 1/2	V	42 1/4	3 3/4	1 1/4	4	11	2	1 1/4	2	120	69 1/2	213 1/4	32 1/2	8 1/2
Gotfredson 60-3	4	1 1/4	1 1/4	1 1/8	V	11	2	16 1/4	1 3/4	41	1 3/4	V	11 3/4	5	1 1/4	4	13 1/2	3 1/4	1 1/4	4	127	81 1/2	242 1/2	32 1/2	8 1/2
Gotfredson 80-4	4	1 1/4	1 1/4	1 1/8	V	14	2	18	1 3/4	43	2	V	11 3/4	7	1 1/4	4	15 1/2	3 3/4	1 1/4	4	147	88 3/4	242 1/2	35	8 1/2
Gotfredson 100-5	4	1 1/4	1 1/4	1 1/8	V	14	2	19	1 3/4	42 1/2	2	V	12 3/4	7	1 1/4	4	18 1/4	3 3/4	1 1/4	4	156	88 3/4	256 1/2	35	8 1/2
Graham Bros. BA	4	1 1/4	1 1/4	1 1/8	V	9	1 1/2	7 1/4	1 1/4	34 1/2	1 1/4	V	50	2 1/2	1 1/4	2	20	2 1/2	1 1/4	4	96 3/4	56 3/4	202 3/4	34	10 1/4
Graham Bros. CA	4	1 1/4	1 1/4	1 1/8	V	9	1 1/2	7 1/4	1 1/4	34 1/2	1 1/4	V	50	2 1/2	1 1/4	2	20	2 1/2	1 1/4	4	96 3/4	56 3/4	202 3/4	34	10 1/4
Graham Bros. DA	4	1 1/4	1 1/4	1 1/8	V	9	1 1/2	7 1/4	1 1/4	34 1/2	1 1/4	V	50	2 1/2	1 1/4	2	20	2 1/2	1 1/4	4	62 3/4	34 3/4	168 3/4	34	10 1/4
Graham Bros. EA	4	1 1/4	1 1/4	1 1/8	V	9	1 1/2	7 1/4	1 1/4	34 1/2	1 1/4	V	50	2 1/2	1 1/4	2	20	2 1/2	1 1/4	4	62 3/4	34 3/4	168 3/4	34	10 1/4
Graham Bros. FA	4	1 1/4	1 1/4	1 1/8	V	9	1 1/2	7 1/4	1 1/4	34 1/2	1 1/4	V	50	2 1/2	1 1/4	2	20	2 1/2	1 1/4	4	132 3/4	74 3/4	238 3/4	34	10 1/4
Gramm-Bernstein 10 Sp'd-1	3	1 1/4	1 1/4	1 1/8	V	12	2 1/4	14 1/2	2 1/4	29	1 1/4	F	48	2	1 1/4	2	26	2	1 1/4	1	97	54	180	30 1/2	9 1/2
Gramm-Bernstein 15-1 1/2-2	3	1 1/4	1 1/4	1 1/8	V	10 1/4	2 1/4	6	2 1/4	39	1 1/4	F	48 1/2	2	1 1/4	2	45 7/8	1 3/4	1 1/4	2	120	74	205 1/2	32	9 1/2
Gramm-Bernstein 65-1 1/2-2	3	1 1/4	1 1/4	1 1/8	V	10 1/4	2 1/4	6	2 1/4	39	1 1/4	F	19 3/4	1 3/4	1 1/4	2	45	1 3/4	1 1/4	4	120	74	205 1/2	32	9 1/2
Gramm-Bernstein 125-2 1/2	3	1 1/4	1 1/4	1 1/8	V	11 1/2	2 1/4	12	1 1/2	32	2 1/4	F	8	5	1 1/4	2	45	2	1 1/4	4	126	77 3/4	214	32	9 1/2
Gramm-Bernstein 30-3	3	1 1/4	1 1/4	1 1/8	V	11	1 1/2	9	1 1/2	33 3/4	2 1/4	F	22 3/4	2 1/4	1 1/4	4	22 3/4	2 1/4	1 1/4	4	129 3/4	81 3/4	226 3/4	36	9 1/2
Gramm-Bernstein 75P-3 1/2	3	1 1/4	1 1/4	1 1/8	V	11	1 1/2	9	1 1/2	33 3/4	2 1/4	F	22 3/4	2 1/4	1 1/4	4	22 3/4	2 1/4	1 1/4	4	129 3/4	81 3/4	226 3/4	36	9 1/2
Gramm-Bernstein 40-4	3	1 1/4	1 1/4	1 1/8	V	11	1 1/2	9	1 1/2	33 3/4	2 1/4	F	28 3/4	2 3/4	1 1/4	4	28 3/4	2 3/4	1 1/4	4	144	87 3/4	240 3/4	36	9 1/2
Gramm-Bernstein 50-5-6	3	1 1/4	1 1/4	1 1/8	V	23 1/4	2 1/4	13 3/4	1 1/2	40 3/4	2 1/4	F	32 1/2	2 3/4	1 1/4	4	32 1/2	2 3/4	1 1/4	4	132	97	263 1/2	36	9 1/2
Grass Premier 40A	3	1 1/4	1 1/4	1 1/8	V	12	2 1/4	14 1/2	2 1/4	29	1 1/4	F	22 1/2	1 1/4	1 1/4	2	48	2 1/2	1 1/4	2	98	70	192	31	9 1/2
Grass Premier 60A1 1/2	3	1 1/4	1 1/4	1 1/8	V	14	2 1/4	16 1/2	2 1/4	32	1 1/4	F	48 1/2	2	1 1/4	2	47	1 1/2	1 1/4	2	108	66	204	31	9 1/2
Grass Premier 70A2 1/2	3	1 1/4	1 1/4	1 1/8	V	14	2 1/4	16 1/2	2 1/4	32	1 1/4	F	48 1/2	2	1 1/4	2	47	1 1/2	1 1/4	2	120	70	214	31	9 1/2
Grass Premier 90A3 1/2	3	1 1/4	1 1/4	1 1/8	V	11	1 1/2	11	1 1/2	40	1 1/2	F	15 3/4	3 3/4	1 1/4	4	15 3/4	3 3/4	1 1/4	4	95	83	192	35	9 1/2
Gray N-1 1/2	3	1 1/4	1 1/4	1 1/8	H	9	2 1/4	2 3/4	1 3/4	34 3/4	1 1/4	F	27	1 1/4	1 1/4	2	19 1/2	1 1/4	1 1/4	1	112 3/4	112 3/4	35	9	9 1/2
Gray T-1	3	1 1/4	1 1/4	1 1/8	H	9	2 1/4	2 3/4	1 3/4	34 3/4	1 1/4	F	20 3/4	2	1 1/4	2	19 1/2	1 1/4	1 1/4	1	152 3/4	152 3/4	32	9	9 1/2
G. W. W. Super	3	1 1/4	1 1/4	1 1/8	V	8	1 3/4	17 1/2	1 1/4	37 1/2	1 1/4	F	49	2 1/2	1 1/4	2	47	1 1/2	1 1/4	2	89	72	192	32	11 1/2
Harvey WOA-2	4	1 1/4	1 1/4	1 1/8	V	11	2	14	1 1/4	35 3/4	2 1/4	F	45	2	1 1/4	2	45	2 1/4	1 1/4	2	139	87	242 1/4	32	10
Harvey WFB-2 1/2	4	1 1/4	1 1/4	1 1/8	V	11	2	14	1 1/4	35 3/4	2 1/4	F	50	2 1/4	1 1/4	2	50	2 1/4	1 1/4	2	139	87	242 1/4	32	10
Harvey WHB-3 1/2	4	1 1/4	1 1/4	1 1/8	V	11	2	14	1 1/4	36 1/2	2 1/4	F	20 3/4	4	1 1/4	2	20 3/4	4	1 1/4	2	151 3/4	85 3/4	258 3/4	35	9
Harvey WFT-6	4	1 1/4	1 1/4	1 1/8	V	11	2	14	1 1/4	36 1/2	2 1/4	F	50	2 1/4	1 1/4	2	50	2 1/4	1 1/4	2	84	52	189 1/2	32	10
Harvey WHT-10	4	1 1/4	1 1/4	1 1/8	V	12	2	14	1 1/4	36 1/2	2 1/4	F	20 3/4	4	1 1/4	2	20 3/4	4	1 1/4	2	86	52 1/2	191 1/2	35	9
Hawkeye O	4	1 1/4	1 1/4	1 1/8	V	12	2	9	1 1/4	36 1/2	2 1/4	F	48	2 1/2	1 1/4	2	48	2 1/2	1 1/4	2	Opt	Opt	Opt	35 1/2	9 1/2
Hawkeye K	4	1 1/4	1 1/4	1 1/8	V	12	2	9	1 1/4	36 1/2	2 1/4	F	48	2 1/2	1 1/4	2	48	2 1/2	1 1/4	2	Opt	Opt	Opt	35 1/2	9 1/2
Hawkeye M	4	1 1/4	1 1/4	1 1/8	V	12	2 1/4	9	1 1/4	36 1/2	2 1/4	F	48	2 1/2	1 1/4	2	48	2 1/2	1 1/4	2	Opt	Opt	Opt	35 1/2	9 1/2
Hawkeye N	4	1 1/4	1 1/4	1 1/8	V	14	2 1/2	12	1 1/2	42 1/2	2 1/2	F	26	3	1 1/4	2	23	3	1 1/4	2	154	79	208	34	10
Hug T	4	1 1/4	1 1/4	1 1/8	V	12	1 3/4	13	1 1/4	36 1/2	2 1/4	F	24	3	1 1/4	2	25	3	1 1/4	2	144 1/2	87 1/2	244	36	11 1/2
Hurlburt A1 1/2-2	3	1 1/4	1 1/4	1 1/8	V	11	1 1/2	11	1 1/2	33 3/4	2 1/4	F	26	3	1 1/4	2	27	3	1 1/4	2	144 1/2	87 1/2	244	36	11 1/2
Hurlburt B2 1/2	3	1 1/4	1 1/4	1 1/8	V	11	1 1/2	11	1 1/2	33 3/4	2 1/4	F	26	3	1 1/4	2	27	3	1 1/4	2	144 1/2	87 1/2	244	36	11 1/2
Hurlburt C3 1/2-4	3	1 1/4	1 1/4	1 1/8	V	11	1 1/2	11	1 1/2	33 3/4	2 1/4	F	26	3	1 1/4	2	27	3	1 1/4	2	144 1/2	87 1/2	244	36	11 1/2
Hurlburt D5-5 1/2	3	1 1/4	1 1/4	1 1/8	V	11	1 1/2	11	1 1/2	33 3/4	2 1/4	F	26	3	1 1/4	2	27	3	1 1/4	2	144 1/2	87 1/2	244	36	11 1/2
Indiana 12-1 1/2	3	1 1/4	1 1/4	1 1/8	V	17	1 1/4	14	1 1/4	38 1/2	1 1/2	F	19	2	1 1/4	4	19	2	1 1/4	4	120	76	207 3/4	32	10 1/4
Indiana 20-2	3	1 1/4	1 1/4	1 1/8	V	6	1 1/4	13	1 1																



## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING				FRAME										
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service		Emergency		Length		Width								
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter *	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Lange F-3½	4	1½	1½	1½	V	5	1½	15½	1½	45	1½	F	13¾	3¾	¼	4	13¾	3¾	¼	4	139	88	227½	37	9½
Lange E-2½	4	1½	1½	1½	V	7	1½	14	1½	42	1½	F	11½	3¾	¼	4	11½	3¾	¼	4	139	85	229	33	10
Larrabee X2-1-1½ Ton.	3	1½	1½	1½	V	6	1½	14	1½	34	1½	F	50	2	¼	2	50	2	¼	2	108	59	205	34	11
Larrabee J4-1½-2½ Ton.	4	1½	1½	1½	V	6½	1½	10	1½	41	1½	F	19	2	¼	4	19	2	¼	4	108	67½	199	34	10½
Larrabee K5-2½-3½ Ton.	4	1½	1½	1½	V	6	1½	11	1½	45½	1½	F	21	2½	¼	4	21	2½	¼	4	Opt	Opt	Opt	34	9¾
Larrabee L4-3½-4½ Ton.	4	1½	1½	1½	V	6	1½	11	1½	45½	1½	F	21	4	¼	4	21	3	¼	4	Opt	Opt	Opt	36	9
Maccar EX-1½	3	1½	1½	1½	V	4½	1½	15	1½	35½	1½	F	50	2	¼	2	48	2	¼	2	101½	68	192½	37	9½
Maccar V-1, 2	4	1½	1½	1½	V	4	1½	19	1½	35	1½	F	11½	3¾	¼	4	11½	3¾	¼	4	138¾	79¾	243¾	34	10½
Maccar H-1, 3	4	1½	1½	1½	V	4	1½	19	1½	35	1½	F	13¾	3¾	¼	4	13¾	3¾	¼	4	138¾	79¾	243¾	34	9½
Maccar M-2, 4	4	1½	1½	1½	V	4	1½	19	1½	35	1½	F	14¾	3¾	¼	4	14¾	3¾	¼	4	156¾	91¾	263¾	34	8½
Maccar G-1, 5	4	1½	1½	1½	V	8	1½	16½	1½	40½	1½	F	18	4	¼	4	18	4	¼	4	163¾	99¾	278	37½	10
Mack AB-1½, 2, 2½, T-Ch.	3	1½	1½	1½	V	7½	1½	5	1½	36½	1½	F	11½	4	¼	2	16½	2½	¼	4	Opt	Opt	Opt	33½	...
Mack Dual R'd'n-1½, 2, 2½	3	1½	1½	1½	V	7½	1½	5	1½	36½	1½	F	18½	3½	¼	4	12	6	¼	2	Opt	Opt	Opt	33½	...
Mack AB-Tractor-5	3	1½	1½	1½	V	7½	1½	5	1½	36½	1½	F	11½	4	¼	2	16½	2½	¼	4	77	...	...	33½	...
Mack AC-3½, 5, 6½, 7½	3	1½	1½	1½	V	5	1½	3	1½	34	1½	F	16½	3	¼	4	20½	3½	¼	4	Opt	Opt	Opt	37½	...
Mack AC-Trac-7, 10, 13, 15	3	1½	1½	1½	V	5	1½	3	1½	34	1½	F	16½	3	¼	4	20½	3½	¼	4	87	...	...	37½	...
Mason Road King	3	1½	1½	1½	V	11½	2	14½	1½	...	1½	F	42	2½	¼	1	40½	2	¼	1	130	76	212	30	10
Master 22-1½	4	1½	1½	1½	V	13½	2	12½	1½	30½	1½	F	12	2	¼	2	12	2	¼	2	Opt	Opt	Opt	34½	...
Master 41-2½	4	1½	1½	1½	V	13½	2	12½	1½	31	1½	F	13½	3½	¼	2	13½	3½	¼	2	117½	...	...	34	...
Master 51-3½	4	1½	1½	1½	V	13½	2	15	1½	35	1½	F	16	3	¼	2	16	3	¼	2	147½	...	...	34	...
Master 61-5	4	1½	1½	1½	V	13½	2	15	1½	35	1½	F	13¾	4	¼	2	18	4	¼	2	162½	...	...	34	...
Master 64-5-6	4	1½	1½	1½	V	13½	2	15	1½	37	1½	F	13¾	4	¼	2	18	4	¼	2	162½	...	...	39	...
Maxwell 1½	3	1½	1	1	V	7½	2½	3½	2½	40	1½	F	31	1½	¼	2	24½	2	¼	2	102	...	...	36	...
Menominee Hurryton -1	3	1½	1	1	V	6	1½	12	1½	36½	1½	F	48	2½	¼	2	11	2½	¼	2	102	...	...	33	10½
Menominee H-1½	3	1½	1	1	V	6	1½	12	1½	40	1½	F	47	2½	¼	2	11	2½	¼	2	122	...	...	216	10½
Menominee D-2	3	1½	1	1	V	3	1½	3	1½	37	1½	F	13½	2½	¼	8	33½	2½	¼	2	146	...	...	224	10½
Menominee HT-1½	3	1½	1	1	V	6	1½	12	1½	33½	1½	F	47	2½	¼	2	33½	2½	¼	2	102½	...	...	192	10½
Menominee J-3, 5	3	1½	2	2	V	3	1½	3	1½	40	1½	F	69	2½	¼	2	52	2½	¼	2	149	...	...	246	9
Menominee G-3½	3	1½	1	1	V	3	1½	3	1½	37	1½	F	15½	3¾	¼	4	15½	3¾	¼	4	149	...	...	246	9
Moreland RR-1	3	1½	1	1	V	8	1½	11½	1½	34	1½	F	49	2½	¼	2	46	2½	¼	2	108	56	208	34	...
Moreland BX-1½	3	1½	1	1	V	8	1½	11½	1½	34	1½	F	12	3	¼	4	12	3	¼	4	108	56	208	34	...
Moreland EX-2	3	1½	1	1	V	9	1½	14	1½	42	1½	F	12	3	¼	4	12	3	¼	4	132	79	226½	34	...
Moreland AX-3	3	1½	1	1	V	9	1½	13	1½	42	1½	F	13½	3¾	¼	4	13½	3¾	¼	4	174	101½	253	34	...
Moreland RX-5	4	1½	1½	1½	V	8	1½	14½	1½	42	1½	F	15½	3¾	¼	4	15½	3¾	¼	4	192	115½	271	38	...
Moreland RC-Bus	3	1½	1	1	H	8	1½	11½	1½	24	1½	F	49	2½	¼	2	46	2½	¼	2	156	100	256	34	7
Moreland EC-Bus	3	1½	1	1	H	9	1½	13	1½	42	1½	F	13½	3¾	¼	4	13½	3¾	¼	4	152	102	254	34	8
Moreland AC-Bus	3	1½	1	1	H	9	1½	13	1½	42	1½	F	15½	3¾	¼	4	15½	3¾	¼	4	171	114½	271	44	7
Nash 2018-1-1½	4	1½	1½	1½	V	3	1½	7¾	1½	36	1	F	49½	2	¼	2	20	2½	¼	1	104½	61	193	30½	9¾
Nash 3018-2-2½	4	1½	1½	1½	V	3	1½	7¾	1½	44	1	F	50½	2	¼	2	20	2½	¼	1	118½	65	207	31½	9¾
Nash 4017-2-2½	3	1½	1½	1½	V	7	1½	14	1½	44	2	F	49½	2½	¼	4	25	2	¼	1	117½	85½	202½	38	14½
National M	3	1½	1	1	V	16	2½	14	2½	40	1½	F	12	3	¼	4	12	3	¼	4	116	65	208	34	9½
National T	3	1½	1½	1½	V	12	1½	18	1½	42	1½	F	13½	3¾	¼	4	13½	3¾	¼	4	123½	80½	220	34	9¾
National NB-3½	3	1½	1½	1½	V	10	1½	17	1½	40	1½	F	16	3	¼	4	16	3	¼	4	142	91	243	36	8½
Nelson & LeMoon G-1	4	1½	1	1	V	8	1½	3½	1½	39½	1½	F	11½	2½	¼	2	11½	2½	¼	2	65	...	...	...	11
Nelson & LeMoon G-1½	4	1½	1	1	V	8	1½	3½	1½	39½	1½	F	11½	3	¼	2	11½	3	¼	2	Opt	Opt	Opt	...	11
Nelson & LeMoon G-2	4	1½	1½	1½	V	9	1½	3½	1½	41½	1½	F	12	3	¼	2	12	3	¼	2	Opt	Opt	Opt	...	11
Nelson & LeMoon G-3	4	1½	1½	1½	V	9	1½	3½	1½	41½	1½	F	13½	3¾	¼	2	13½	3¾	¼	2	Opt	Opt	Opt	...	11
Nelson & LeMoon G-4	4	1½	1½	1½	V	9	1½	3½	1½	41½	1½	F	16½	3¾	¼	2	16½	3¾	¼	2	Opt	Opt	Opt	...	11
Nelson & LeMoon G-5	4	1½	1½	1½	V	12	2	6	2	40½	1½	F	18	4	¼	2	18	4	¼	2	Opt	Opt	Opt	...	11
Netco DK-2	3	1½	1	1	V	12	1½	16	1½	40½	1½	F	13½	3¾	¼	4	13½	3¾	¼	4	142	94	234½	34½	9
Netco HL-2½-3	3	1½	1½	1½	V	13	1½	16	1½	41½	1½	F	13½	3¾	¼	4	13½	3¾	¼	4	139½	93½	234½	34½	9
Noble A-76-1½	4	1½	1	1	V	10	1½	12½	1½	33½	1½	F	47	2½	¼	2	45	2½	¼	2	100	58	191	34	...
Noble A-21-1½	4	1½	1	1	V	10	1½	12½	1½	33½	1½	F	19	2	¼	2	19	2	¼	2	102	74	203	34	...
Noble B-31-2	4	1½	1	1	V	7	1½	16½	1½	34½	1½	F	43	2	¼</										

## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING								FRAME						
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service				Emergency				Length			Width			
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Perfection B.....	3	1 1/4	1 1/4	1 1/4	V	9	12	6	2	43 3/4	5 1/2	V	10 1/2	2 1/4	1 1/4	4	10 1/2	2 1/4	1 1/4	4	104 1/2	76 1/2	184	32	10 1/2
Perfection C.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	12 1/2	14	1 1/2	41 1/2	5 1/2	F	10 1/2	2 1/4	1 1/4	4	10 1/2	2 1/4	1 1/4	4	117 1/2	78 1/2	217	34	10 1/2
Perfection D.....	4	1 1/4	1 1/4	1 1/4	V	12	12 1/2	14	1 1/2	41 1/2	5 1/2	F	10 1/2	2 1/4	1 1/4	4	10 1/2	2 1/4	1 1/4	4	103 1/2	64 1/2	203	34	9 1/2
Perfection E.....	4	1 1/4	1 1/4	1 1/4	V	12	12 1/2	6	2	40 1/2	5 1/2	F	12	3 1/4	1 1/4	4	12	2 1/4	1 1/4	4	116 1/2	80 1/2	205	38	12 1/2
Perfection EA.....	4	1 1/4	1 1/4	1 1/4	V	12	12 1/2	6	2	40 1/2	5 1/2	F	12	3 1/4	1 1/4	4	12	2 1/4	1 1/4	4	146 1/2	110 1/2	235	38	12 1/2
Pierce Arrow XA-2.....	3	1 1/4	1 1/4	1 1/4	V	16 3/8	12 1/2	14 1/4	2 1/4	43 1/2	5 1/2	F	22 1/2	3 1/4	1 1/4	4	22 1/2	3 1/4	1 1/4	4	125 1/2	70 1/2	225	34 1/2	8 1/2
Pierce Arrow XB-3.....	3	1 1/4	1 1/4	1 1/4	V	16 3/8	12 1/2	14 1/4	2 1/4	43 1/2	5 1/2	F	22 1/2	3 1/4	1 1/4	4	22 1/2	3 1/4	1 1/4	4	125 1/2	70 1/2	225	34 1/2	8 1/2
Pierce Arrow WC-4.....	3	1 1/4	1 1/4	1 1/4	V	11	12 1/2	15 1/2	2 1/4	43 1/2	5 1/2	F	9 1/2	6	1 1/4	4	18	4 1/2	1 1/4	4	133 1/2	78 1/2	237	38 1/2	7 1/2
Pierce Arrow WD-5.....	3	1 1/4	1 1/4	1 1/4	V	11	12 1/2	15 1/2	2 1/4	43 1/2	5 1/2	F	9 1/2	6	1 1/4	4	18	4 1/2	1 1/4	4	133 1/2	78 1/2	237	38 1/2	7 1/2
Pierce Arrow RE-6.....	3	1 1/4	1 1/4	1 1/4	V	11	12 1/2	15 1/2	2 1/4	43 1/2	5 1/2	F	9 1/2	6	1 1/4	4	20 1/2	4 1/2	1 1/4	4	139 1/2	84 1/2	243	38 1/2	8 1/2
Pierce Arrow RF-7 1/2.....	3	1 1/4	1 1/4	1 1/4	V	11	12 1/2	15 1/2	2 1/4	43 1/2	5 1/2	F	9 1/2	6	1 1/4	4	20 1/2	4 1/2	1 1/4	4	139 1/2	84 1/2	243	38 1/2	8 1/2
Pierce Arrow XB-TT.....	3	1 1/4	1 1/4	1 1/4	V	16 3/8	12 1/2	14 1/4	2 1/4	43 1/2	5 1/2	F	22 1/2	3 1/4	1 1/4	4	22 1/2	3 1/4	1 1/4	4	77 1/2	48 1/2	172 1/2	34 1/2	8 1/2
Pierce Arrow WD-TT.....	3	1 1/4	1 1/4	1 1/4	V	11	12 1/2	15 1/2	2 1/4	43 1/2	5 1/2	F	9 1/2	6	1 1/4	4	18	4 1/2	1 1/4	4	77 1/2	48 1/2	173 1/2	38 1/2	8 1/2
Pierce Arrow RF-TT.....	3	1 1/4	1 1/4	1 1/4	V	11	12 1/2	15 1/2	2 1/4	43 1/2	5 1/2	F	9 1/2	6	1 1/4	4	20 1/2	4 1/2	1 1/4	4	77 1/2	48 1/2	173 1/2	38 1/2	8 1/2
Pioneer 59AA-1.....	3	1 1/4	1 1/4	1 1/4	V	13	12	12	2	35	1	F	14	1 1/4	1 1/4	4	14	1 1/4	1 1/4	4	102	74	210	30	8 1/2
Pittsburgher A 1 1/2-2.....	3	1 1/4	1 1/4	1 1/4	V	6	11 1/2	12	1 1/4	37	1	F	24	2	1 1/4	4	24	2	1 1/4	4	126	74	210	30	8 1/2
Pittsburgher C-2 1/2-3.....	3	1 1/4	1 1/4	1 1/4	V	6	11 1/2	16	1 1/4	43	2 1/4	F	26	2	1 1/4	4	26	2	1 1/4	4	136	84	220	32	10 1/2
Pittsburgher D-3 1/2.....	3	1 1/4	1 1/4	1 1/4	V	6	11 1/2	16	1 1/4	43	2 1/4	F	26	2	1 1/4	4	26	2	1 1/4	4	136	84	220	32	10 1/2
Power 1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	8	11 1/2	10	1 1/4	36	1 1/2	F	11 1/2	3 1/4	1 1/4	4	11	3 1/4	1 1/4	4	143	84	220	32	10 1/2
Power F-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	8	11 1/2	12 1/4	1 1/4	36	1 1/2	F	26 1/2	2 1/4	1 1/4	4	26 1/2	2 1/4	1 1/4	4	143	84	220	32	12
Power C-3 1/2.....	3	1 1/4	1 1/4	1 1/4	V	9	11 1/2	12	1 1/4	36	1 1/2	F	59	2 1/4	1 1/4	1	45	2 1/4	1 1/4	1	143	84	220	36	12
Rainier R31-3/4.....	3	1 1/4	1 1/4	1 1/4	V	9	12	6	2	43 3/4	5 1/2	V	11	2 1/4	1 1/4	4	11	2 1/4	1 1/4	4	86 1/2	50 1/2	181	34	11 1/2
Rainier R29-1.....	3	1 1/4	1 1/4	1 1/4	V	9	12	6	2	43 3/4	5 1/2	V	11	2 1/4	1 1/4	4	11	2 1/4	1 1/4	4	96 1/2	57 1/2	190 1/2	34	10 1/2
Rainier R36-1 1/2.....	4	1 1/4	1 1/4	1 1/4	V	8	11 1/2	14	1 1/4	40	4 1/4	V	11 1/2	3 1/4	1 1/4	4	11	3 1/4	1 1/4	4	111	72 1/2	206 1/2	34	9 1/2
Rainier R28-2 1/2.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	12 1/2	14	1 1/4	42	4 1/4	F	20	2 1/4	1 1/4	4	20	2 1/4	1 1/4	4	124 1/2	80 1/2	225	33	9 1/2
Rainier R20-2 1/2-3.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	12 1/2	14	1 1/4	42	4 1/4	F	13	3 1/4	1 1/4	4	13	3 1/4	1 1/4	4	137 1/2	85 1/2	241 1/2	33	10
Rainier R25-3 1/2-5.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	12 1/2	14	1 1/4	42	4 1/4	F	15 1/2	3 1/4	1 1/4	4	15 1/2	3 1/4	1 1/4	4	157 1/2	91	263 1/2	37	8 1/2
Rainier R27-6-7.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	12 1/2	14	1 1/4	42	4 1/4	F	18	4 1/4	1 1/4	4	18	4 1/4	1 1/4	4	154 1/2	88	263 1/2	37	9 1/2
Red Ball.....	3	1 1/4	1 1/4	1 1/4	V	8	11 1/2	14	1 1/4	42	4 1/4	F	58	2 1/4	1 1/4	2	43	2 1/4	1 1/4	2	167 1/2	104 1/2	267	34	10 1/2
Reo F-2500 lbs.....	3	1 1/4	1 1/4	1 1/4	V	5 1/2	11 1/2	5 1/2	1	39 1/2	1	F	45 1/2	3 1/4	1 1/4	1	40 1/2	3 1/4	1 1/4	1	81	55 1/2	171	30	10 1/2
Rowe CDW-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	18	11 1/2	16	1 1/4	37	2	...	20	2 1/4	1 1/4	4	20	2 1/4	1 1/4	4	139 1/2	81 1/2	224 1/2	33	9 1/2
Rowe GSW-3.....	3	1 1/4	1 1/4	1 1/4	V	18	11 1/2	16	1 1/4	37	2	...	20	2 1/4	1 1/4	4	20	2 1/4	1 1/4	4	139 1/2	81 1/2	224 1/2	33	9 1/2
Rowe HW-4.....	3	1 1/4	1 1/4	1 1/4	V	11	12 1/2	17	1 1/4	43	2	...	22	4	1 1/4	4	22	4	1 1/4	4	163 1/2	99	249 1/2	36	9
Rowe FW-5.....	3	1 1/4	1 1/4	1 1/4	V	11	12 1/2	17	1 1/4	43	2	...	68	3	1 1/4	2	60	3	1 1/4	2	175 1/2	107 1/2	265	38 1/2	10 1/2
Ruggles 15-3/4.....	3	1 1/4	1 1/4	1 1/4	V	12 1/2	12 1/2	20	2	34 1/2	1 1/4	F	43 1/2	2 1/4	1 1/4	2	39	1 1/4	1 1/4	2	128	97 1/2	170	38 1/2	9 1/2
Ruggles 20R-1 1/4.....	3	1 1/4	1 1/4	1 1/4	V	7 1/2	12 1/2	13 1/2	1 1/4	35	1 1/2	F	48	2 1/4	1 1/4	2	46 1/2	2 1/4	1 1/4	2	96 1/2	55 1/2	186 1/2	34	11
Ruggles 20AR-1 1/4.....	3	1 1/4	1 1/4	1 1/4	V	7 1/2	12 1/2	13 1/2	1 1/4	35	1 1/2	F	48	2 1/4	1 1/4	2	46 1/2	2 1/4	1 1/4	2	104 1/2	65	194 1/2	34	11
Ruggles 40-2.....	3	1 1/4	1 1/4	1 1/4	V	7 1/2	12 1/2	13 1/2	1 1/4	35	1 1/2	F	47 1/2	2 1/4	1 1/4	2	33 1/2	2 1/4	1 1/4	2	134 1/2	75 1/2	224	34	8 1/2
Ruggles 40H-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	7 1/2	12 1/2	13 1/2	1 1/4	35	1 1/2	F	58	2 1/4	1 1/4	2	44	2 1/4	1 1/4	2	134 1/2	75 1/2	224	34	9 1/2
Sandow G-1.....	3	1 1/4	1 1/4	1 1/4	H	9	12	7	2	38 3/4	3 1/4	V	22 1/4	2 1/4	1 1/4	4	22 1/4	2 1/4	1 1/4	4	96	.....	205	34	10 1/2
Sandow C-G-1 1/2.....	3	1 1/4	1 1/4	1 1/4	H	9	12	7	2	38 3/4	3 1/4	V	22 1/4	2 1/4	1 1/4	4	22 1/4	2 1/4	1 1/4	4	120	.....	205	34	10 1/2
Sandow J-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	9	12 1/2	13	1 1/4	39	3 1/4	F	11 1/2	3 1/4	1 1/4										



## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE											BRAKE LINING								FRAME					
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length		Width			
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Super Truck 50.....	3	1 1/4	1 1/4	1 1/4	V	18 1/2	1 3/4	19	1 1/2	37 1/2	1 7/8	F	51 1/2	2 1/4	3/4	2	51 1/2	1 1/4	3/4	2	135	84	243	36	9 1/4
Super Truck 70.....	3	1 1/4	1 1/4	1 1/4	V	18 1/2	1 3/4	19	1 1/2	37 1/2	1 7/8	F	55 1/2	2 1/4	3/4	2	55 1/2	2 1/4	3/4	2	144	97 1/2	249	34	10 3/4
Super Truck 100.....	3	1 1/4	1 1/4	1 1/4	V	6	1 3/4	19	1 1/2	42	1 7/8	F	68	3	3/4	2	51 1/2	3	3/4	2	144	97 1/2	249	34	10
Traffic C-4000.....	3	1 1/4	1 1/4	1 1/4	H	10 1/2	2	10 1/2	2	41 1/4	1 1/4	F	43 1/2	2 1/4	3/4	2	38	1 1/4	3/4	2	120 3/4	67 1/2	213 3/4	42	10 3/4
Traffic 6000.....	3	1 1/4	1 1/4	1 1/4	H	10 1/2	2	10 1/2	2	41 1/4	1 1/4	F	43 1/2	2 1/4	3/4	2	47	1 1/4	3/4	2	120 3/4	69 3/4	213 3/4	34	11 3/4
Traffic Speedboy.....	3	1 1/4	1 1/4	1 1/4	H	10 1/2	2	10 1/2	2	41 1/4	1 1/4	F	43 1/2	2 1/4	3/4	2	38	1 1/4	3/4	2	120 3/4	86	174	34	11 3/4
Transport 15-1.....	3	1 1/4	1 1/4	1 1/4	V	10 1/2	2	13	2	40 3/4	1 1/4	F	48	2 1/4	3/4	2	46 3/4	1 1/4	3/4	2	98 1/2	57 1/2	188	34	10
Transport 26-1 1/2.....	4	1 1/4	1 1/4	1 1/4	V	9 1/4	2	13	1 1/4	34	1 1/4	F	48 1/2	2 1/4	3/4	2	46 1/2	1 1/4	3/4	2	113 1/2	70 1/2	201	34	10
Transport 36-2.....	4	1 1/4	1 1/4	1 1/4	V	10 3/4	2	16	1 1/4	33 1/2	1 1/4	F	10 1/4	3 1/2	3/4	2	46 1/2	1 1/4	3/4	2	120 1/2	72 1/2	210	34	11
Transport 61-3 1/2.....	4	1 1/4	1 1/4	1 1/4	V	9 1/4	2	16	1 1/4	33 1/2	1 1/4	F	11 1/8	3	3/4	4	48 1/2	2 1/4	3/4	2	127 1/2	78 1/2	218	34	11
Transport 75-5.....	4	1 1/4	1 1/4	1 1/4	V	12	2	16	1 1/4	35 1/2	1 1/4	F	11 1/8	3	3/4	4	58	2 1/4	3/4	2	150 1/8	93 1/2	251 1/2	36 1/2	10 1/2
Traylor B.....	4	1 1/4	1 1/4	1 1/4	V	10	2	6	1 1/4	38	1	F	50	2	3/4	2	50	2	3/4	2	117	75	204 3/4	34	10
Traylor C.....	4	1 1/4	1 1/4	1 1/4	V	12	2	12	1 1/4	36	2	F	50	2	3/4	2	50	2	3/4	2	122	73 1/2	218 3/4	34	10 3/4
Traylor D.....	4	1 1/4	1 1/4	1 1/4	V	12	2	12	1 1/4	36	2	F	56 1/2	2 1/4	3/4	2	56 1/2	2 1/4	3/4	2	142	76	241 1/2	34	9 3/4
Traylor F.....	4	1 1/4	1 1/4	1 1/4	V	14	2	14	1 1/4	37	2	F	59	2 1/4	3/4	2	59	2 1/4	3/4	2	165	92 1/2	273 1/4	35	11
Triangle AA-1.....	3	1 1/4	1 1/4	1 1/4	H	17	2	17	2	34	1	F	22 1/2	1 1/4	3/4	1	48	2 1/2	3/4	2	94	53	177	35	10
Triangle A-1 1/2.....	4	1 1/4	1 1/4	1 1/4	V	14	1 1/4	14 1/2	1 1/4	39 1/4	1 1/2	F	7 1/2	4	3/4	2	49	2	3/4	2	126	77 1/2	225	34	12
Triangle B-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	9	1 1/2	18	1 1/4	39 1/4	1 1/2	F	7 1/2	4	3/4	2	52	3	3/4	2	132	84 1/2	217 1/2	34	9
Triangle C-2.....	4	1 1/4	1 1/4	1 1/4	V	14	1 1/4	14 1/2	1 1/4	39 1/4	1 1/2	F	7 1/2	4	3/4	2	52	3	3/4	2	129	81	219 1/2	34	12
Ultimate A-2.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	3/4	2	17	4 1/2	3/4	2	126			32 3/4	
Ultimate AJ2.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	3/4	2	17	4 1/2	3/4	2	126			32 3/4	
Ultimate AJL-2.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	3/4	2	17	4 1/2	3/4	2	150			32 3/4	
Ultimate AJXL.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	3/4	2	17	4 1/2	3/4	2	150			32 3/4	
Ultimate B-3.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	3/4	2	17	4 1/2	3/4	2	144			32 3/4	
Ultimate BL-3.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	3/4	2	17	4 1/2	3/4	2	192			32 3/4	
Ultimate D-5.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	51	2 1/4	3/4	2	51	2 1/4	3/4	2	180			37 1/2	
Union FW-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	20	1 3/4	19 1/2	1 1/2	37 3/4	1 1/2	F	26	4 1/2	3/4	1	52	3	3/4	1	133 1/2	77 1/2	224	32	11 1/2
Union H-4.....	3	1 1/4	1 1/4	1 1/4	V	20	1 3/4	19 1/2	1 1/2	37 3/4	1 1/2	F	56 3/4	3 1/2	3/4	1	32	4 1/2	3/4	1	157 1/2			34	
Union HW-4.....	3	1 1/4	1 1/4	1 1/4	V	20	1 3/4	19 1/2	1 1/2	37 3/4	1 1/2	F	26	4 1/2	3/4	1	24	4	3/4	1	157 1/2	98	264	34	13 1/2
United 25.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 3/4	1 1/2	F	48	2 1/2	3/4	2	46 3/4	2 1/4	3/4	2	115 3/4	53 3/4	182	33	9 3/4
United 30.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 3/4	1 1/2	F	48	2 1/2	3/4	2	46 3/4	2 1/4	3/4	2	115 3/4	75 3/4	206	33	10 1/2
United 35.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 3/4	1 1/2	F	47 1/2	2 1/2	3/4	2	33 1/4	2 1/2	3/4	2	115 3/4	76 3/4	206	33	9
United 50.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 3/4	1 1/2	F	47 1/2	2 1/2	3/4	2	33 1/4	2 1/2	3/4	2	115 3/4	80 3/4	226	33	8 1/2
United 60.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 3/4	1 1/2	F	57 1/2	2 1/2	3/4	2	42 1/2	2 1/2	3/4	2	132 3/4	80 3/4	226	33	8 1/2
United 80.....	4	1 1/4	1 1/4	1 1/4	V	8 1/2	2	13 1/2	1 1/2	42	2	F	60	3	3/4	2	60	3	3/4	2	141 3/8	81 1/2	237 3/4	34	9 3/4
U.S.U.-1 1/2.....	4	1 1/4	1 1/4	1 1/4	V	11 1/2	2 1/4	11 1/2	1 1/4	33	1 1/4	F	50 1/2	2 1/2	3/4	2	20	1 1/2	3/4	4	108	70	195	32	9 1/4
U.S.N.-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	11 1/2	2 1/4	9	1 1/4	37	1 1/4	F	50 1/2	2 1/2	3/4	2	46 1/2	1 1/2	3/4	2	120	82	211	34	11
U.S.N.W. 23-1 1/2-2.....	4	1 1/4	1 1/4	1 1/4	H	10 3/4	1 1/4	11 1/2	1 1/4	33	1 1/4	F	21	2 1/4	3/4	4	21	2 1/4	3/4	4	120	82	211	34	11
U.S.R.-2 1/2-3.....	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	10	1 1/4	35	1 1/4	F	21	2 1/4	3/4	4	21	2 1/4	3/4	4	144	94	241	34	9 3/4
U.S.S.-3 1/2-4.....	3	1 1/4	1 1/4	1 1/4	V	9	1 1/2	8	1 1/2	37	1 1/2	F	21	4	3/4	4	21	3	3/4	4	156	104	258	36	9
U.S.T. 5-7.....	4	1 1/4	1 1/4	1 1/4	V	15	2	13	1 1/2	38 3/4	2	F	62	3	3/4	4	33	4	3/4	1	168	103	278	36	10 1/2
U.S.S. Spec. 4-5.....	3	1 1/4	1 1/4	1 1/4	V	9	1 1/2	8	1 1/2	37	1 1/4	F	21	4	3/4	4	21	3	3/4	4	156	104	258	36	
Wachusett S-1.....	3	1 1/4	1 1/4	1 1/4	V	9 1/2	1 1/4	11	1 1/4	31 1/2	1 1/4	F	11 1/4	2 1/2	3/4	2	11 1/4	2 1/2	3/4	2	115	74	212	33	
Wachusett J-1 1/2.....	4	1 1/4	1 1/4	1 1/4	V	10	1 1/2	10 1/2	1 1/2	36	1 1/2	F	11 1/4	3	3/4	2	11 1/4	3	3/4	2	121	76	212	33	
Wachusett K2.....	4	1 1/4	1 1/4	1 1/4	V	10	1 1/2	10 1/2	1 1/2	40 1/2	1 1/2	F	11 1/4	3	3/4	2	11 1/4	3	3/4	2	145	78	240	33	

## Silent Hoist Truck Derricks and Winches

**T**HE products manufactured by the Silent Hoist Co., of Brooklyn, N. Y., include derricks, drum-winches and hoists designed for pole setting, cable pulling and for all such work which the motor truck engine is called upon to perform in connection with telephone, telegraph, gas, electric, railway and public utilities operation.

The illustrations show some of the principle units built by this company. One of the most interesting products this company builds is the Model TL Swinging Boom Derrick for pole setting. Of course pole setting is only one of the jobs which can be performed by this outfit. It will handle smoke stacks, transformers, heavy castings; it can be used for loading and unloading gondola cars, and in fact on any job where it is necessary to move heavy and bulky materials and machinery. This derrick is manufactured by this company under the Tirrell patents. The der-

rick is usually operated in connection with a Model TBB Double Drum Friction Clutch Winches—one of a complete line of motor truck winches manufactured by the Silent Hoist Co.

The boom is adjustable from 20 to 30 ft. and will swing a full 180 deg. The lines are operated through the double drum winch located in back of the cab, and driven from the motor truck engine. The boom is easily dismantled by two men in a few minutes, and, therefore, no loading space is taken when the derrick is not in use.

The drive from the power take-off of the truck to the winch is by means of a heavy roller chain. There are only two gears on the entire machine; the worm gear drive, consisting of a phosphor-bronze worm wheel meshing with a nickel-steel, hardened, ground, and polished worm mounted on radio-thrust ball bearings—all running in oil in an enclosed gear case.

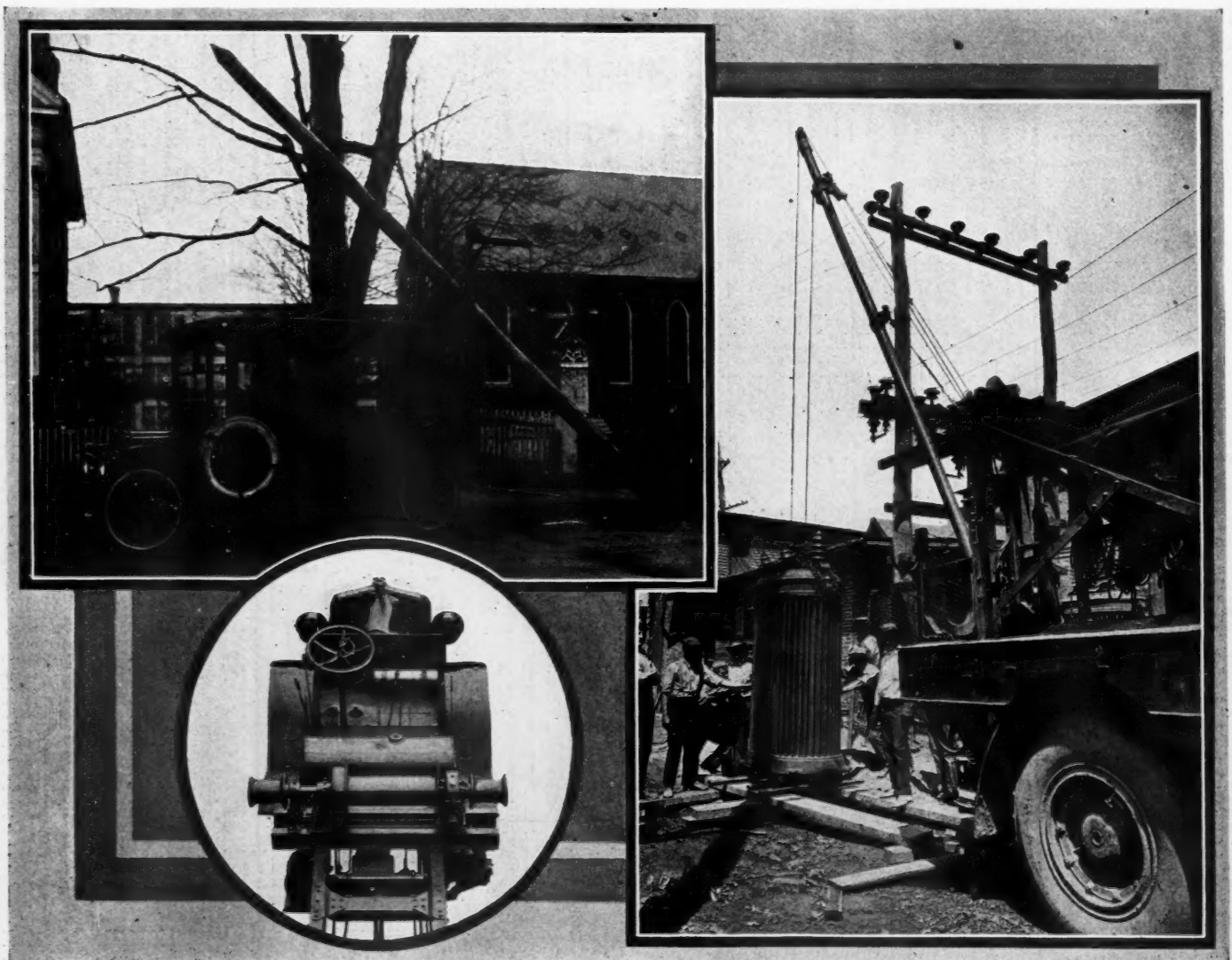
This worm gear drive is self-locking and non-reversible, and absolutely prevents backward turning (with the clutches engaged) should the engine stop. The drums are accurately bored and machined and fitted with self-lubricating phosphor-bronze and graphite bushings, and have split, bolted ratchets with pawls. The clutches and brakes are lined with Raybestos and are easily adjusted.

### Special One-Ton Truck Pole Derrick

For trucks of about one-ton capacity this company offers a recent development, Model TK, which is entirely complete within itself and does not require a power winch.

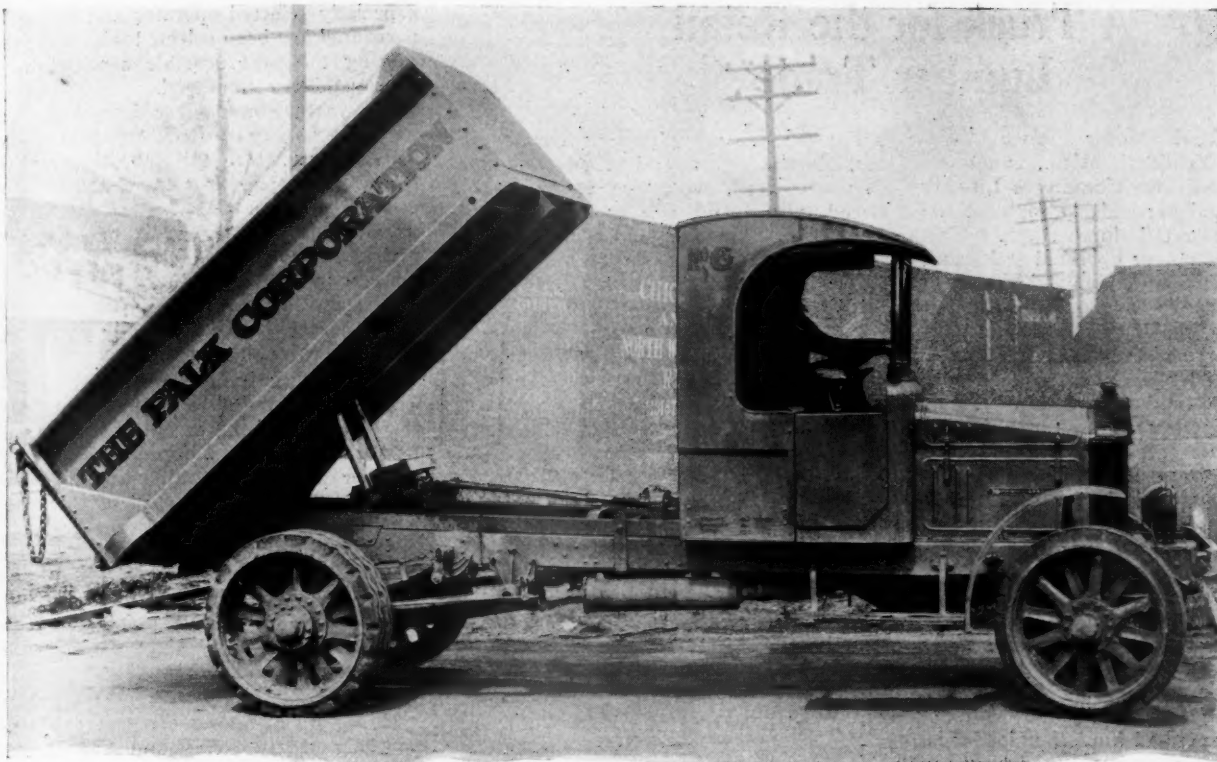
This pole derrick is permanently placed in position at the rear of the truck and is not in the way when the truck is used for hauling purposes. It can be mounted on any truck in a few hours and weighs mounted, less than 500 lb. It provides a simple method of setting poles with two men and any light truck.

The insert below shows a typical installation of Model TA Silent multi-speed winch with two-winch heads for public utility service. Note the auxiliary three-speed and reverse winch transmission at the right.



The pole derrick above is designed for trucks of approximately one-ton capacity. It provides a convenient method of setting poles with two men and a light truck. The circle shows the Model TA silent multi-speed winch. Model TL swinging boom derrick is shown handling a transformer





Pierce-Arrow  
Truck with  
Bethlehem  
Steel Wheels  
and Heil  
Dump Body

## The First Cost Is the Only Cost

**E**XPERIENCE has proved that Bethlehem Rolled Steel Truck Wheels are pre-eminently adapted to the extreme conditions which prevail when maximum service is demanded from any truck under heavy duty operation.

Any truck when loaded to capacity and being driven at high speed over rough roads, car tracks, holes and innumerable other obstructions has to withstand the severest punishment, much of which devolves upon the wheels.

Under such conditions, **RELIABILITY** is the only standard by which truck wheels can be measured.

Bethlehem **ROLLED STEEL** Truck Wheels **ARE** reliable.

They are made from Bethlehem rolled steel I-beams punched and bent to shape and the spokes brought together at the hub in such a manner that the spoke and rim construction insures a secure bond throughout the whole wheel. The result is a high-grade, one-piece, all-steel wheel which surpasses in adaptability any other known material for this purpose, because it combines resiliency and lighter weight with the greater mechanical strength of rolled steel.

Scores of users bear witness to their superiority. The first cost is the only cost.

*Let our engineers confer with you on your truck wheel problem. They will be glad to help you*

### BETHLEHEM STEEL COMPANY

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CHICAGO  
ST. LOUIS  
SAN FRANCISCO

# BETHLEHEM

## Rolled Steel Truck Wheels

## A Truck for the Retail Lumber Trade

COMMERCE Motor Truck Company of Ypsilanti, Mich., announces a new truck—the Commerce Lumber Truck, designed particularly to meet the needs of the retail lumbermen. This truck, with its power operated unloading device, unloads 3000 ft. of mixed lumber in from forty seconds to a minute, without displacing or breaking a board, leaving the lumber in a perfect stack. The Power Lumber Unloader operates so smoothly and cradles the lumber so efficiently, that binding the lumber in any way is unnecessary. The truck is built and sold as a complete unit. It is the first unit of its type built particularly for the lumber field, that gives the dealer the opportunity of selling transportation instead of bartering on trucks.

With the Commerce lumber truck idle time is reduced to ten minutes and less per trip, whereas with the ordinary truck, it necessitates having two men to unload the lumber taking from one hour to an hour and a half each trip.

The power operated lumber unloader is operated by the driver from the cab, using the power of the engine to shift the body as shown in the illustration. The body is operated by a revolving worm and sliding block on a set track, driven from a power take-off on the transmission.

The truck is designed to carry 3000 to 3500 ft. of mixed lumber or soft wood and 2000 ft. of green hardwood. The body is fourteen ft. long and five ft. wide, and is equipped with advertising panel and stakes. The bed of the truck, for the smaller lumber man, where he loads direct from the pile, has iron straps on a hardwood bed, to eliminate wear. In the large cities, where roller equipment or trailers are used to make up the order, self-locking rollers are put on the bed of the truck. This enables the Commerce lumber truck to be immediately adapted to any system of loading now in vogue in the retail lumber yards.

The truck is completely equipped with cab, electric lights, and when pneumatic tires are used, with tire pump. It is priced, with solid tire equipment complete, pneumatic tire equipment complete and pneumatic tires on the front and solids on the rear, all with or without a closed cab.

The chassis used as a base for the lumber job is a special model 25 Commerce chassis. The unloading device is a patented feature owned by the Commerce Motor Truck Company and is sold exclusively through Commerce dealers.

Commerce dealers, in selling this truck, have found that a demonstration of its ability to unload its load in forty seconds, immediately takes the selling talk out of truck channels and into lumber language. Its advent in the lumber field has been enthusiastically received by the lumber men, because of its ability to save idle time and to cut a great deal of the unusually large cost of present day lumber deliveries.

### Solving the Road Construction Contractor's Biggest Problem

The road construction contractor must solve many problems in the building of large sections of hard-surfaced roads, and anyone who has had any experience in road building operations knows too well that, if the grading and other preparatory work does not proceed uniformly, paving operations suffer costly and trying delays.

On a recent contract calling for a 53-mile hard road in Illinois the R. F. Conway Company solved their problem by motorizing the job with nine 10-ton "Caterpillar" Tractors. In connection with these they bought a large fleet of self-loading wheel scrapers and blade graders. All dirt moving and grading operations on this job are "Caterpillar" hauled. Each tractor is handled by an

especially selected operator and the entire personnel has been selected with a view to getting the best possible service out of the machinery employed.

Contractors have never figured any way to profit financially from "trimming" and "shouldering." On this job, however, the Conway Company has found that "Caterpillars" perform these operations at approximately half the ordinary cost, thus giving them a profit. One "Caterpillar" pulls four scrapers on one turn and one man handles the loading of the four. These scrapers have a capacity of one and one-quarter yards.

Another highly important fact in connection with this job is that fewer men are employed, in fact less than half. Under ordinary circumstances the average number of men and horses employed would be 63 of the former and 23 of the latter. Three "Caterpillars," 10 men comprise each camp outfit, making a total of 9 "Caterpillars" and 30 men working. On this job at greater efficiency than has heretofore been attained in road building. Three camps are being maintained, all under the direction of one superintendent.

The Conway company report a general speeding up all along the line of operation, dirt movers, pavers and graders moving from point to point in an orderly and uniform manner. The savings in time, temper, money and general wear and tear on the dispositions of the men are items too important to be ignored by anyone interested in the highly exacting and precise business of building the nation's roads.

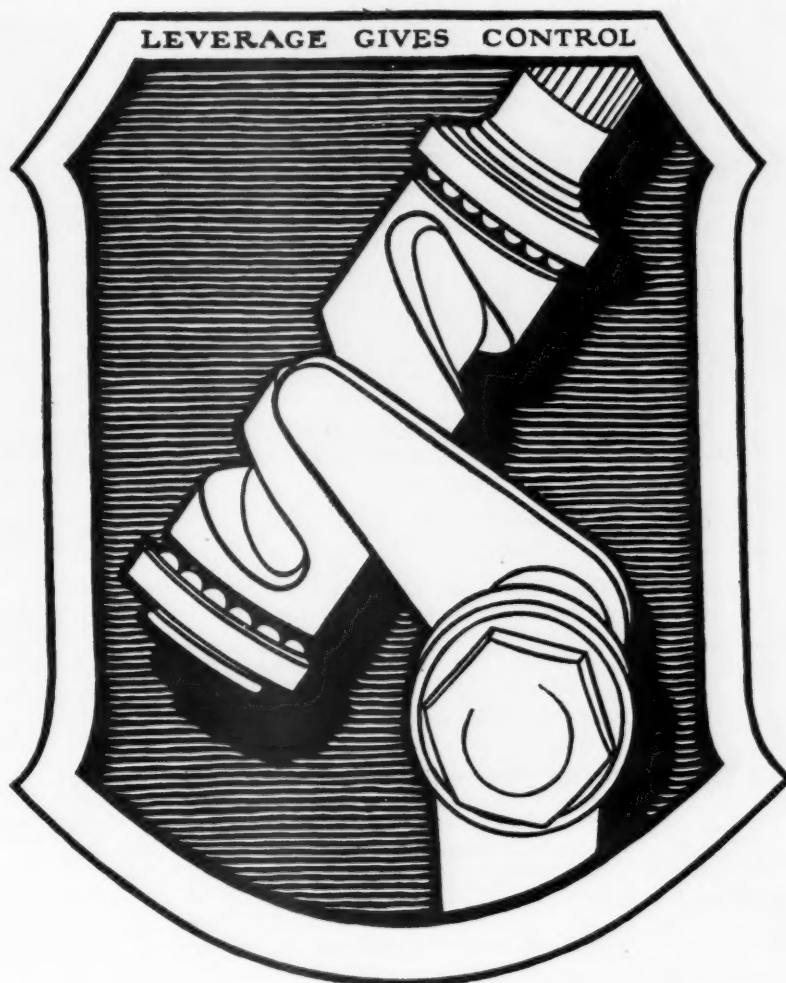
The Clarksburg Automobile Dealers' Assn. Clarksburg, W. Va., have engaged J. S. Casey as full time secretary. During the past year Mr. Casey has been in charge of the contract department of the Percy Chamberlain Associates, Inc., Detroit, promoters of the Appleby Used Car Plan, and for the previous three years was assistant secretary of the National Automobile Dealers' Assn. The association headquarters will be in the Exponent Bldg.



**The Commerce Lumber Truck Which Will Unload 3000 ft. of Mixed Lumber in Less Than a Minute**

In unloading the lumber, the body first shifts back and then gradually tips until the rear end of the load touches the ground. The truck is then started and the lumber slides down the bed of the truck onto the ground, leaving it stacked perfectly and without a jolt. Finished lumber and lumber dressed on four sides can be handled on this job without marring or splitting.



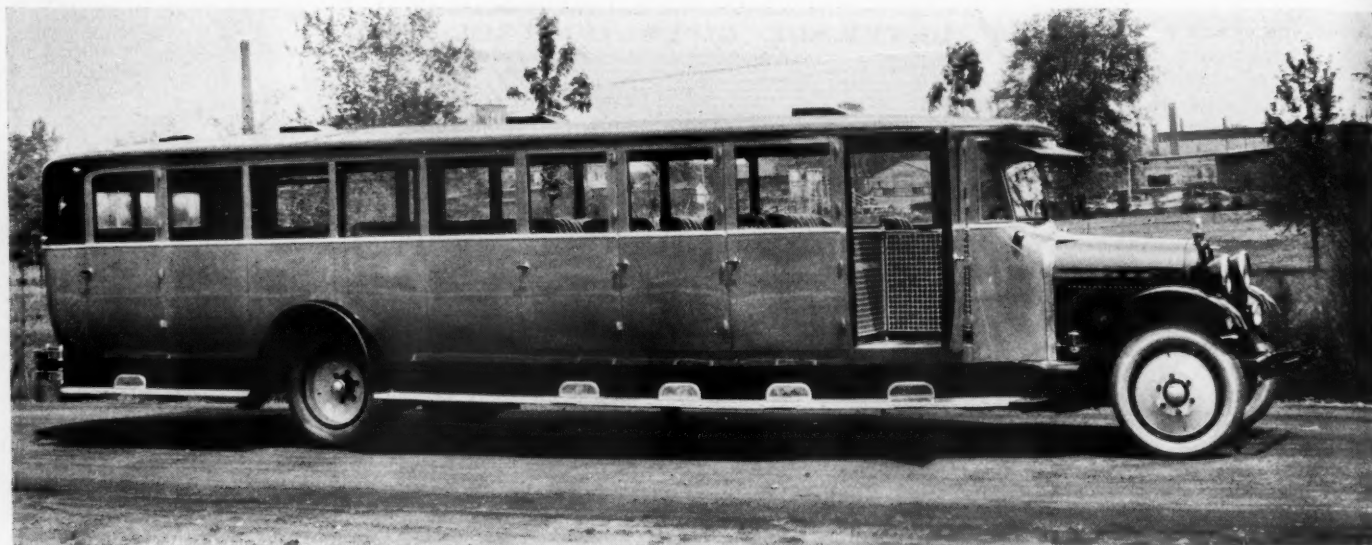


# Fatigue Means Danger

**A** DRIVER, fatigued by constant road-shock in his hands and arms, is not well prepared to meet emergencies when they arise. The Ross Cam and Lever Steering Gear practically eliminates road-shock, and at the same time gives easier, surer control. Car owners and drivers want this new ease and safety. *Write for the facts.*

ROSS GEAR AND TOOL COMPANY, 760 Heath Street, Lafayette, Indiana

**ROSS**  
**CAM and LEVER**  **STEERING GEARS**  
**EASIER STEERING LESS ROAD SHOCK**



#### New Sedan Type Bus Body to Operate on Sixty Mile Route

This specially designed bus is the latest addition to the fleet of the Owosso-Flint Bus Line, Inc. The body was built to order by the Weatherproof Body Corporation. There is ample seating room for 30 despite the center aisle, which runs from front to rear. Without the aisle the capacity would be 40 passengers. The separately enclosed smoking compartment seats thirteen. The average round trip to be made between Owosso and Flint, Michigan, will be 60 miles over a fairly level concrete highway. W. E. Taylor, president, who designed this unusual unit, has been known for years as one of the most successful bus operators in the country.

#### The Van Dorn Model U-S Hoist

The principle of the screw-jack is utilized in the new Van Dorn Underbody Screw-Type Hoist, manufactured by the Van Dorn Iron Works Company, Cleveland, Ohio. This hoist is designed to fill a specific need and to serve a particular purpose in the dump truck field.

The hoist, called an "Average Duty" hoist, is the outcome of the proven features of both the vertical and underbody hoists successfully marketed by this company for a number of years.

It is entirely mechanical in operation. Power developed by the truck engine is transmitted to the lift arms by means of gears operating a screw-jack in a plunger which in turn operates steel cables at-

tached to sheave wheels; a point on each sheave wheel is pivoted to the lift arms, which raise the body of the truck.

Freedom from any twist or bending strains, due to weaving of the chassis frame, or unequal weight on body, is insured by a ball bearing equalizing yoke, which automatically takes up any inequality at the point where pressure is applied to the cables.

All moving parts of the screw-jack are encased and run in oil.

The body can be raised, lowered, stopped and locked at any point up to 45

degrees, the automatic stopping point. The body cannot lower by itself but only by the application of power from the truck engine. The hoist is readily accessible for lubrication and minor adjustments.

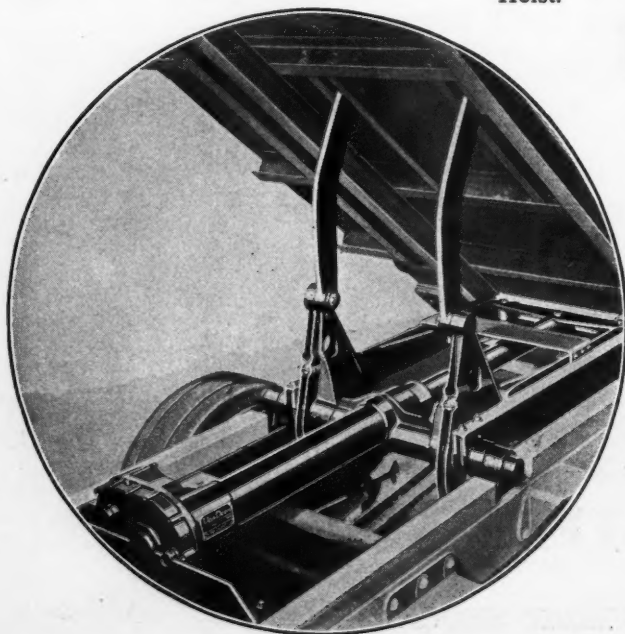
In capacity this hoist can handle anything up to  $7\frac{1}{2}$  tons which makes it adaptable to at least 90 per cent of the loads that are permitted on the highway today.

#### Eaton Axle Will Distribute Ferry Shackle Bolt

The Eaton Axle & Spring Service Company of Cleveland, Ohio, with its several branches and service stations has taken over the distribution throughout the United States for the Ferry No-soun Shackle Bolt Nut, a new device which effectively eliminates squeaks and rattles emanating for the spring shackles.

The Ferry No-soun Shackle Bolt Nut is made of steel, beautifully finished in black enamel and nickel. It consists of only four parts. Installation is exceedingly simple and can be quickly made. Once installed it remains in place and eliminates the necessity of continuously taking up the shackle bolts, at the same time eliminates all squeaks and rattles and acting to some extent as a shock absorber.

The Wisconsin Motor Manufacturing Co. of Milwaukee, Wis., one of the leading builders of truck, tractor and industrial engines have just completed negotiations with Ronaldson Bros. & Tippet, Pty., Ltd. of Ballarat, Australia, for the furnishing of a large quantity of 50 h. p. four cylinder gasoline engines for tractors. These tractors are to be assembled and used in Australia.



Van Dorn Underbody Screw-Type Hoist.





# "What Do You Know About the Acme Franchise?"

What do you know about the most remarkable franchise offered to the motor truck dealer today?

Do you know that the Acme Franchise does not require that you make a big investment, nor force you to sign a form of contract that makes your future uncertain?

Do you know that it is a perpetual franchise, guaranteeing a complete security so that you may build a permanent business for yourself?

Do you know that the Acme Franchise offers you an unequalled opportunity to divide your sales efforts without forcing you to divide your resources?

Practically all you are called upon to invest is your *time*. The Acme Franchise covers every phase of factory relations with the dealers, with honest co-operation between ourselves and the dealer as the key-note. This proves to you that we are ready to invest our money in your organization to help you make the Acme the leading truck of your territory.

You know the Acme Truck—its reputation among dealers and owners for splendid service and steady profits. There is no question on that score. But we ask that you let us answer every question about the remarkable Acme Franchise by writing or wiring us today.

## ACME MOTOR TRUCK CO.

534 Mitchell Street  
Cadillac, Michigan



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Registered in U. S. and  
Other Countries

# ACME

"Acme Covers the Whole Field of Trucking Needs With the Balanced Acme Line"

## The Bethlehem 7-Speed "California Special"

**U**NDER this title the Bethlehem Motors Corporation, of New York, has announced a new job designed particularly for road building requirements, in the state of California.

The frame and under-carriage portion is very sturdy, to withstand the abuse of contracting and road building work. The engine is a 4 x 5¼ in. four-cylinder, of standard Bethlehem design and manufacture, coupled with the Brown-Lipe seven-speed transmission and multiple dry-disk heavy duty clutch.

Spicer drive shafts are employed, both between the clutch and amidships transmission and between the transmission and rear axle, four universal joints coupled up with 2¼ in. outside diameter tubing, constitutes the shafts.

The rear axle is the heavy duty Wisconsin Parts Company's double reduction type, model 120-FG.

The springs are of chrome vanadium steel; the shackles and leaves being lubricated through the Myer's magazine oilers.

Tires consist of 36 x 6 dual Kelly Springfield Caterpillars on the rear and 36 x 6 singles on the front, mounted on Smith steel wheels.

The small engine, together with the large range of speeds makes possible a comparatively light chassis, capable of carrying heavy loads with maximum economy, the high gear ratio being approximately 8 to 1 and the lowest gear ratio, 98 to 1. This reduction makes it possible to climb very steep inclines even with the small engine.

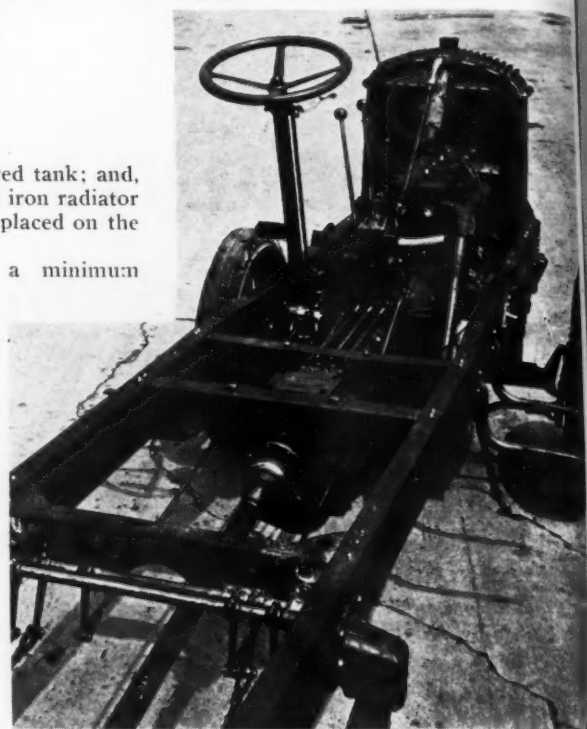
Other features included are: Electric lights and self-starter, with a separate source of electrical energy, supplied for ignition purposes, by the new American Bosch AT-4, third edition magneto.

The engine is cooled by a Bush Tubular Radiator, protected with a special, reinforced core face guard, the whole of which

is mounted in a heavy armored tank; and, in addition to this, a wrought iron radiator guard of exclusive design, is placed on the front of the chassis.

The idea of producing a minimum weight dump chassis follows the decided trend to lighter weight in chassis design, and to meet the increasingly rigid weight allowances in all states. While this new Bethlehem model is the largest and heaviest of all Bethlehem models, it is within the weight requirements of all states.

**The Bethlehem 7-Speed. Designed Specially for Road Building Service.**



## The Calectric for Milk Delivery

A new electric truck has made its appearance on the West Coast, the same being designed primarily for the delivery of milk on retail routes. As will be seen from the illustration this truck follows gas truck lines. It is rated at one ton capacity, with a load capacity of 45 cases of milk (quarts) with room for a few cases of pints and the usual amount of cream.

This truck is built by the Calectric Vehicle Co., Oakland, Cal. Because of the rolling nature of the surrounding country more battery capacity is required than would ordinarily be needed on a one-ton job. This truck is operated on 44 cells of Exide Iron Clad battery, and develops a speed when loaded of about

14½ to 15½ miles per hour over the entire routes. The average milk routes around the Bay cities run from 20 to 25 miles, with approximately 300 stops to serve about 400 customers.

The weight of the vehicle when loaded averages 7000 lbs. The drive is through worm gear and General Electric motor. The truck is being assembled locally and no arrangements have been made as yet for quantity production. The trucks are being made to order at present. Lambert Cushion truck tires are being used as standard equipment.

The Kendell Co., of America, which has taken over the Kendell Motor Products Co., of Fort Wayne, Ind., has moved all equipment and material to Detroit where it will continue the manufacture of the Kendell piston ring.



**The Calectric Truck—Batteries Are Carried Under the Hood**



**METRO  
46" CLOSED CAB**

### The Metro 46 in. Closed Cab

This cab, recently added to the line built by the Metropolitan Body Co., of Bridgeport, Conn., is designed especially for light duty and speed trucks. The sliding doors and drop sashes permit the cab to be immediately closed in stormy weather and opened in warm weather. Maximum vision is provided by the one-piece windshield which is of the ventilating type. This cab is also made in 50 in., 56 in. and 62 in. widths across the inside.



# Establish Yourself Permanently Through Our Re-Sale Plan

A motor truck dealer is more than a distributor—he is a transportation merchandiser. He must at all times be an active, aggressive salesman of the product. He is the local representative of his factory.

The success of a manufacturer depends upon the success of his distributors. Garford realizes this fact and its policy is to assure the dealer's success through re-sale efforts. To place a truck on a dealer's floor is not enough—it must be re-sold to a customer, who must be kept satisfied.

Direct, personal sales effort, in *your* territory; advertising and sales promotional co-operation; a service plan without a peer, and a liberal finance plan can help *you* place a profitable number of Garfords on your streets.

Write for our plan. It entails no obligation whatever.

**The Garford Motor Truck Company, Lima, Ohio**

Manufacturers of Motor Trucks, 1 to 7½ tons

# GARFORD

## DEPENDABLE TRANSPORTATION

## Service Truck Caravan Tours Country

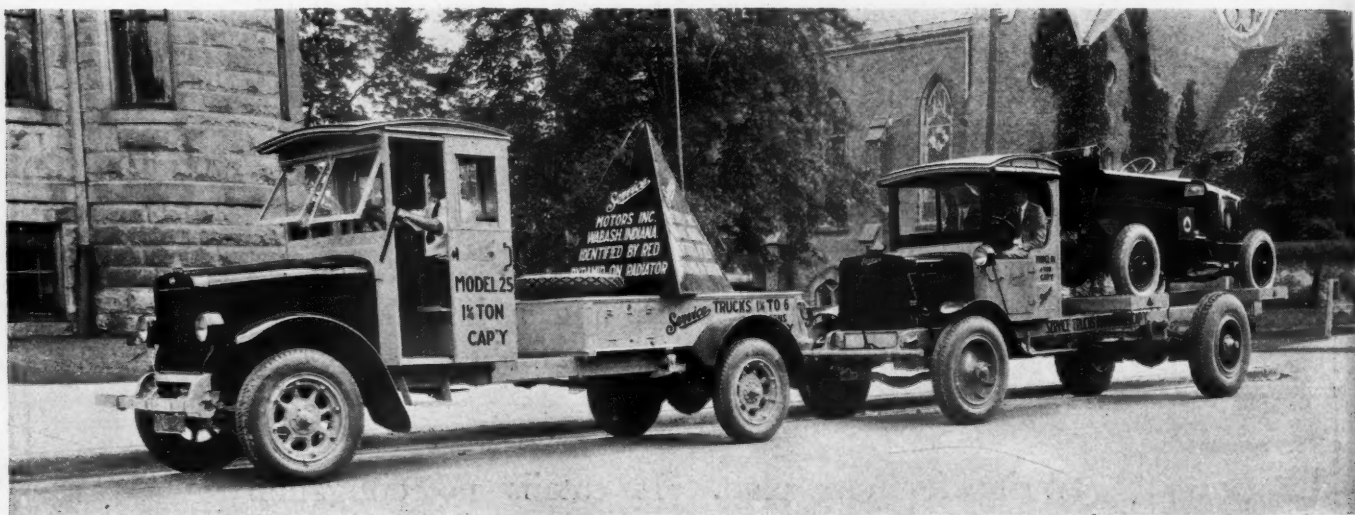
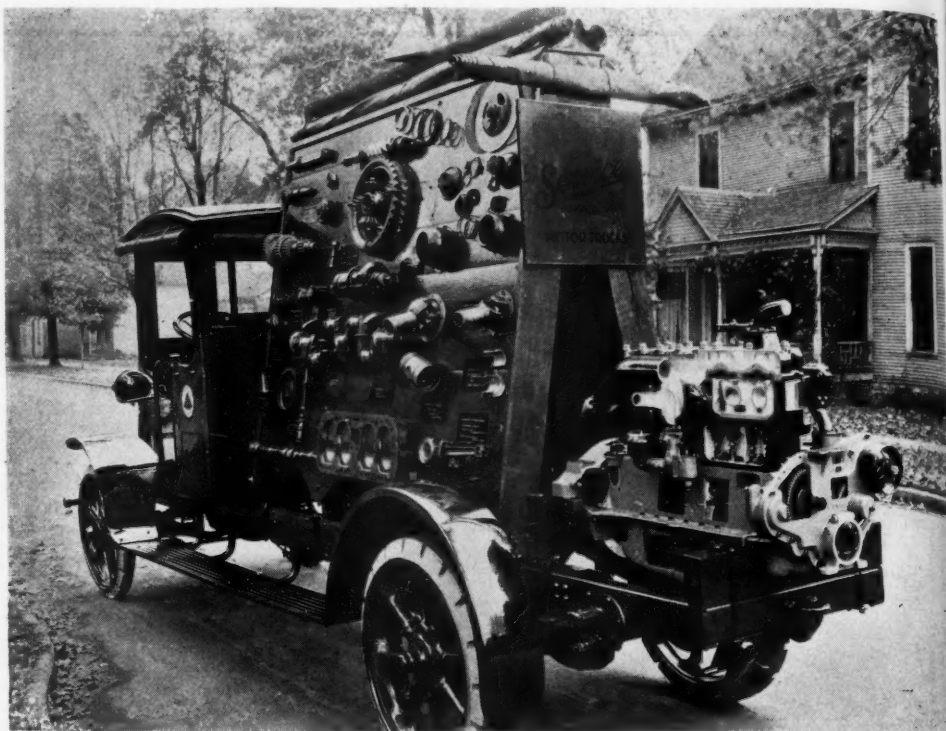
About six weeks ago, four Service trucks as shown in the accompanying illustrations, left the factory of Service Motors at Wabash, Indiana, for the purpose of making a tour of the country. This caravan will tour the eastern and southern part of the country, making many overnight stops and extended stops in the larger cities. The purpose of this tour is to demonstrate to dealers and truck users the possibilities of Service trucks as well as to prove the ability of motor trucks in general to handle transportation problems.

Along with the tour are two men from the factory, Messrs W. E. Murphy and C. B. Stults, and in each territory the caravan will be accompanied by the district manager, as well as the distributor in whose territory they happen to be.

Needless to say the caravan has proved very interesting, not only to dealers and users, but to the general public. The display truck giving a complete view of a cut-away counterbalanced engine as well as many actual parts, is attracting a lot of attention.

A motion picture is also used, taking the audience entirely through the Service plant while the Service sales records for phonograph use are holding the crowd and putting across many excellent Service Sales points.

Copies of a specially prepared folder entitled "Adam to Wabash" are broadcasted to acquaint the general public with the history of transportation, Wabash, Indiana, and the Service truck.



## Empire Section of Electric Service Association Holds Meeting

The Empire section of the Automotive Electric Service Association held a most successful meeting at Rochester, N. Y., on July 16. Over 60 were present and began the day by being guests of Mayor Van Zant and inspecting the new subway. The meeting was held in the afternoon, Vice-Chairman A. L. Stiefvater presiding. F. J. Denford, Rochester Electrical Service Association, described the co-operative plan of the organization one of the features of which is a discount in parts and labor to those engaged in the trade. The members of the association operate under the flat-rate system. Following the meeting the members and guests visited the plant of the North East Electric Company.

A banquet was served in the evening,

Carl Hartman presiding. J. Lawrence Hill officiated as toastmaster. Remarks were made by Mr. Kane, Philadelphia Storage Battery Co.; Mr. Bowie, Electric Storage Battery Co.; Mr. Holmes, Wagner Electric Co.; Mr. Walcott, service manager, North East Electric Co. and Mr. Fessenden of the same concern.

J. Harry Hearn, secretary of the A. E. S. A. was the principal speaker of the evening. After outlining the objects of the association, he voiced his opinions on the installment plan and how it affects the service department in connection with new and used vehicles. He said that it is a menace to the dealer, service station and car owner in many instances because credit is given to the individual who is not a good risk, since he has, probably paid less than half of the price of the car and immediately assumes additional obligations through the purchase of accessories and repairs which he really can-

not afford, and which often results in a loss for the service station.

U. M. Stevens, United Motors Service, Inc., followed after which there was a general discussion of the subjects.

## Howe Rubber in Receivership

A temporary receiver, Charles D. Roth, of New Brunswick, has been appointed for the Howe Rubber Co., while George M. Griffiths, of Cleveland, named as president two months ago by the creditors, is working on a reorganization plan. The assets of the company are placed at \$797,975, with liabilities totaling \$336,672.

## To Auction Vreeland Plant

The plant of the Vreeland Motor Co., Inc., maker of the Ultimate truck, located at Hillside, N. J., which is in bankruptcy will be sold at auction Aug. 14 by order of the court.



# Sam Foreman

## says

## first again!



**SAM FOREMAN**  
Ruggles Dealer in Detroit

Mr. Foreman has established a reputation as one of the most aggressive and most successful motor truck dealers in the automobile city.

What "Sam Foreman says" tells a big story to any dealer seeking the agency for a good line of commercial cars. Ruggles Trucks are not only fast sellers, but they stay sold—that's why Ruggles dealers are so successful.

Send for the Ruggles Dealer proposition and you'll see for yourself why Ruggles dealers are making money.

The Ruggles line is complete with six sizes from  $\frac{3}{4}$  to 3 tons

**RUGGLES MOTOR TRUCK COMPANY**  
Saginaw, Michigan

"FOR TWO YEARS I've been advertising a cash reward to anyone bringing me the name of any RUGGLES owner in Detroit who is either dissatisfied or desirous of selling or trading his RUGGLES TRUCK. Not once has anyone claimed this offer and I think I've sold my share of trucks in Detroit and vicinity.

"This not only expresses what I think of RUGGLES TRUCKS but also explains what owners think of them."

—SAM FOREMAN.



*Ruggles Trucks Have Become One of the Most Popular Makes in Detroit*

## New Bus Terminal for Indianapolis

The Indianapolis Bus Terminal Association is planning to erect a larger bus terminal near its present location, one block from Washington and Illinois Streets. Although detailed plans are not yet ready to be announced it is the plan, according to Ted. C. Brown, secretary-treasurer of the association, to build a terminal with covered sheds under which passengers will enter or depart from the buses.

One of the difficulties of the present headquarters is that some of the newer buses are so wide and so long that they cannot use the present street upon which the terminal is situated with ease. There is too little room for parking of buses awaiting passengers and scheduled time to start. In the past three months a dozen of the largest size buses have begun operation either on new lines that use the terminal or as added vehicles to establish lines that have grown beyond their old equipment.

Two years ago when the terminal company was organized there were but a few companies using less than a dozen buses, now more than 100 vehicles of the association members use the terminal. They make 162 round trips a day and handled as high as 7000 passengers a day in and out of the terminal, according to Brown. A large part of all new equipment bought and placed in operation lately have been vehicles of large size and advanced construction and cost. Some of the new type buses cost as much as \$11,000 each, against the average cost of considerably less than \$3000 each a year ago. Lines running to Ft. Wayne, Terre Haute, Richmond and Madison employ the "pullman" types which are proving very popular.

Some truck manufacturers who have

not yet figured in bus trade in Indiana are now devoting energy to this line and are bringing demonstrators to the section. The entrance of traction lines in the state into bus transportation bids fair to enlarge the business and to take from it some share of hazard, in that regulatory legislation that may come is expected to be less unfair than former attempts.

## Multibestos Lined Brake Shoe for Fords

Multibestos Co., of Walpole, Mass., has just announced a new brake shoe for Fords made of high quality cold rolled steel. This shoe is lined with Multibestos Brake Lining of 3/16 in. thickness which is claimed to be thicker than any lining heretofore applied to Ford brake shoes.

The lining is three-ply Multibestos, a specific guarantee of long service, sealed by the famous Multibestos Interlocking Weave. This new Multibestos Lined Brake Shoe presents a surface that is absolutely flat and true and which resists grease and oil. The shoes are packaged in pairs and come complete with springs ready to attach.

## Exhibitors at A. E. R. A. Show

(Continued from page 17)

Keystone Lubricating Company  
The Lang Body Company  
The Leece-Neville Company  
The Lorain Steel Company  
Metal Safety Railway Tie Company  
Metal & Thermo Corporation  
More-Jones Brass & Metal Company  
Morton Manufacturing Company  
Nachod Signal Co., Inc.  
National Brake Company, Inc.  
National Carbon Company, Inc.  
National Lead Company  
National Pneumatic Company  
National Railway Appliance Company  
National Safety Devices Company

National Tube Company  
The Newport Coach, Inc.  
New York Transportation Company  
North East Electric Company  
R. D. Nuttall Company

The Ohio Brass Company  
Ohmer Fare Register Company  
The Okonite Company

The Panelyte Board Company  
The Pantasote Company, Inc.  
Paterson Vehicle Company  
Perey Manufacturing Company  
N. A. Petry Company, Inc.  
The Pierce-Arrow Motor Car Company  
Pittsburgh Testing Laboratory  
Portland Cement Association  
Powers Accounting Machine Corp.

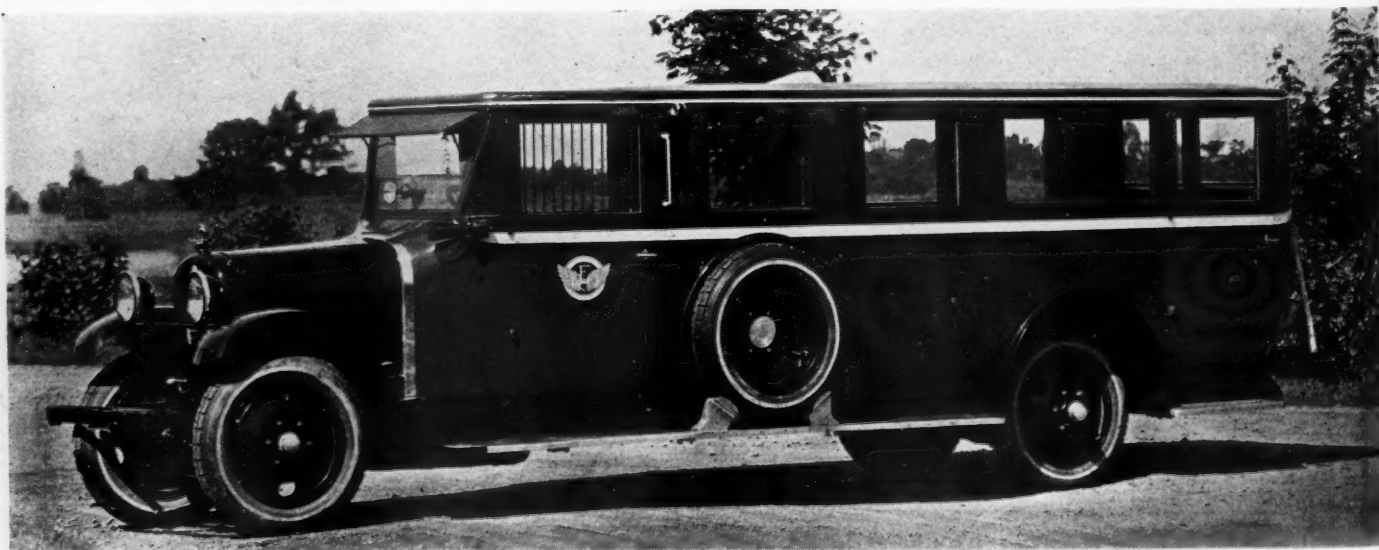
The Rail Joint Company  
Railway Improvement Company  
Railway Safety Equipment Company, Inc.  
Railway Track-Work Company  
Railway Utility Company  
Rail Welding & Bonding Company  
Reade Manufacturing Company  
Reo Motor Car Company  
Rooke Automatic Register Company  
Root Spring Scraper Co.

St. Louis Car Company  
Safety Car Devices Company  
Sattley Company  
George W. Saums Company  
The Gustav Shaefer Wagon Company  
Shanklin Equipment Company  
The Sherwin-Williams Company  
Simmons-Boardman Publishing Company  
The Six Wheel Company  
The Peter Smith Heater Company  
Stafford Roller Bearing Car Truck Corp.  
Standard-Johnson Company, Inc.  
Standard Steel Works Company  
Standard Underground Cable Company  
Star Brass Works  
A. Stucki Company

Taylor Electric Truck Company  
Templeton, Kenby & Co., Ltd.  
The Texas Company  
The Timken Detroit-Axle Company  
The Tool Steel Gear & Pinion Co.  
Transit Equipment Company  
Tucco Products Corporation

Union Switch & Signal Company  
U. S. Change-Making Turnstile Company  
The Universal Lubricating Company  
Van Dorn Coupler Co.

Walter Motor Truck Company  
Western Electric Company, Inc.  
Westinghouse Companies  
Westinghouse Electric & Mfg. Co.  
Westinghouse Traction Brake Company  
William Wharton, Jr., & Co., Inc.  
Wheeling Corrugating Company  
Wheel Truing Brake Shoe Company  
The White Company  
Alan Wood Iron & Steel Co.  
Yellow Coach Manufacturing Company



The Latest Addition to the Reo Line; a Sedan Type of Cross-Country Bus

The new Reo Sedan type of cross-country bus, which has just been announced by the Reo Motor Car Company is completely equipped in every respect and planned for utmost comfort to the slightest detail. It has long and low lines and is brightly finished in body coloring and trimmings. The same special bus chassis is used for this model as is used in connection with the Pay-Enter type announced by Reo a few months ago. The only change is the fact that 32-6 single tires are regular equipment on both front and rear wheels in this latest model whereas dual tires are standard on the Pay-Enter type. The body of the new DeLuxe Reo Sedan Bus is divided into three compartments: driver's, passenger's and smoking compartment. Exclusive of the driver's compartment, the bus has a minimum seating arrangement for sixteen passengers and is, therefore, the rated capacity of the job. However, when permissible under the law, a maximum load of twenty passengers may be carried on the seats. It is not intended, and provisions have not been made, that any standees will be carried.



## Stoughton Puts Profits Back Into Business

A volume of business representing \$1,740,000, practically all in Stoughton motor trucks and motor buses, was reported to stockholders of the Stoughton Wagon Co. at the annual meeting at the factory in Stoughton, Wis. It was stated that the profit was satisfactory, but instead of declaring a dividend, stockholders agreed that the profit be turned into the working fund so that the output of freight and passenger trucks may be enlarged materially to meet the steadily increasing sales. The truck business of the past year was approximately double that of the previous year.

Alterations are under way in the shops and some retooling is being done, as the Stoughton concern will now build two types of the engines used in its cars, which formerly were built on contract by the Mid West Engine Co. of Indianapolis.

## New England Truck Sales Picking Up

Some idea of how sales have been going in New England this year are found in the analysis of registrations in those States, particularly in Massachusetts. In the Bay State this year from January 1 to July 1 the figures show that for three months successively the registrations compared to a year ago were fewer. January showed an increase of nearly 10,000 but February fell down to only 237 more. But March, even with its show, had a decrease of 66; April followed suit slipping down to 103 and finally May was off 525 trucks. This total decrease of 694 reduced the actual increase from 10,320 to 9,626. That there was a decline generally was shown by the car registrations, for in April and June there was a decrease in that classification. Also the entire year registrations for Massachusetts in 1923 showed less trucks than for 1922, the only New England State to fall behind. In Maine the truck registrations to July 1 were only 334 more than the total registrations for 1923.

The figures show that Massachusetts has 9869 more commercial vehicles registered than the total of the other five New England States up to July 1. There were 80,238 listed in the Bay State and 70,369 in the other neighboring States. And of the Massachusetts total more than 50 per cent are within 30 miles of Boston. Although those figures at first show a decline a recovery is now apparent.

With the mills starting up in New Bedford, and the boot and shoe factories getting under way in Brockton, business is beginning to pick up which means more sales of commercial cars. Here are the figures:

Massachusetts Truck Registration Jan. 1—July 1 for Five Years

	TRUCKS					
	1920	1921	1922	1923	1924	Increase Over 1923
January .....	33,538	38,712	43,831	50,722	60,697	9,975
February .....	728	1,427	1,789	2,176	2,415	237
March .....	2,330	2,642	3,680	4,024	3,958	*....
April .....	3,347	2,450	3,626	5,624	5,521	†....
May .....	2,475	2,017	3,557	4,898	4,373	‡....
June .....	2,080	1,761	2,420	3,232	3,340	108
Totals .....	44,498	48,009	58,903	70,676	80,304	10,320

\* 66 decrease; † 103 decrease; ‡ 525 decrease.

## Huck Axle Now Built for Bus Service

The development of a double-reduction axle for high-speed motor coaches and heavy motor buses demanded by present day passenger transportation service, is announced by the Sheldon Axle & Spring Company, Wilkes-Barre, Pa. The new axle is basically of the Huck double-reduction type and will be manufactured by the Sheldon company under the Huck patents. The development of the new axle was carried out under the personal direction of Louis C. Huck, designer of the Huck self-energizing floating cam brake and the Huck axle.

The new axle permits buses to be built with an exceptionally low floor-board height, thus bringing the center of gravity lower and thereby making a safer vehicle, and at the same time meeting the popular demand for a low-hung bus.

The axle is equipped with very powerful self-energizing brakes which can be operated with relatively slight muscular exertion on the part of the driver.

The high efficiency of the balanced epicyclic gearing characteristic of the Huck design, makes it possible to utilize more than 96 per cent of the power of the engine in starting, which decreases the time required and the distance travelled in passing from low to high gear, increasing the average speed and cutting down the running schedule time without any harder service for the engine.

The new design is also noteworthy from the point of view of accessibility and efficient lubrication, as the entire driving mechanism of two reductions is a self-contained unit, readily removable from the axle housing.

## American Bearings Receiver

Upon petition of the American National Bank of Milwaukee, the local Circuit Court has appointed James W. Bryden as receiver of the American Bearings Co., manufacturer of engine and motor bearings, with works and offices in West Allis, a suburb of Milwaukee. Creditors have been notified to file claims not later than Jan. 10, 1925.

Assets of the Ruggles Motor Truck Co., Ltd., of Canada, have been purchased by the parent Ruggles Company of Saginaw and a small syndicate of Canadian interests, and the plant will be removed from London to Toronto, according to a statement by R. J. Goldie, general manager and vice-president of the parent company. John Bridge will be actively identified with the business as Canadian manager.

## Now Norma-Hoffmann Bearings Corp.

The Norma Co. of America, of Long Island City, N. Y., has changed its corporate name to the Norma-Hoffmann Bearings Corp., with the same management, personnel and policies as heretofore. This step is taken in order that the corporation may realize to the fullest extent the value of its nationally advertised trademarks, "Norma" and "Hoffmann."

The company has just completed a new and modern plant on its 17 acres of property at Stamford, Conn., where it will manufacture both the Norma and Hoffmann lines. Its Norma line was introduced 12 years ago and has met the needs of manufacturers of fractional horsepower motors, small generators, vacuum cleaners, electrical utility motors, measuring and recording instruments, grinders and drills and other small tools.

Following the success of the Norma line of precision ball bearings, the company two years ago acquired the American rights in patents, trademarks and business of the Hoffmann Manufacturing Co., Ltd., of Chelmsford, England, and now is manufacturing in this country the Hoffmann heavy-duty precision roller bearing in addition to the Norma.

An increase in the manufacturing schedule for August of 33 1/3 per cent over the July schedule is announced by W. R. Angell, vice-president of the Continental Motors Corporation. "A general stiffening up in business is noticed," said Mr. Angell. "Our August production will be approximately a third more than July."

Explaining that they wish to substitute motor buses, the Washington Railway and Electric Company of Washington, D. C., has filed a petition with the public utilities commission of Maryland for the abandonment of the 1 1/2 miles of trolley line between Bladensburg and East Riverdale.

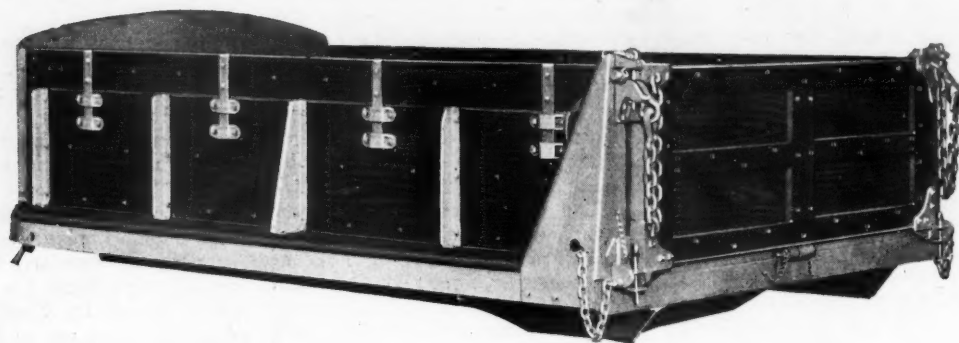
The Strom Ball Bearing Mfg. Co. announces the opening of the Strom Distributing Station at 2322 S. Michigan Ave., Chicago, for the convenience of automobile and truck dealers, fleet owners, service stations and repair shops.

Lawrence Fitch, widely known in the automotive industries, died recently after a brief illness at the age of 50 years. He was one of the founders of the Globe Seamless Tubes Co., Milwaukee, and was active as president of the Western Malleables Co., Beaver Dam, Wis.

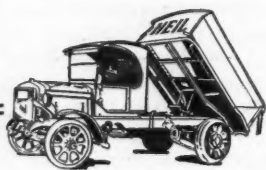
Benjamin G. Lamme, chief engineer of the Westinghouse Electric and Manufacturing Co. and one of the world's leading electrical authorities, after a lingering illness of several months, died at his home, 230 Stratford Street, East Liberty, Pa., July 8th.

George A. Ludington, prominently identified with the Fisk Rubber Co. since 1905 and for the last five years vice-president in charge of rubber purchases, with headquarters in the New York offices, died at his home in Springfield, last month. Before joining Fisk, he was for 10 years with the Morgan & Wright Co. of Chicago and was for three years superintendent for the Firestone Tire & Rubber Co.

***They'll tell you in New York—It's the finest Body Built!***



## The **HEIL** Steel Lined Body, New York Type



### Use Heil Hoists

to dump the heaviest loads  
under hardest dumping  
conditions

in the shortest time  
with the cleanest dump  
at the highest angle  
far away from service  
stations

—a hoist for every load  
on any road

**T**HIS is Heil's Wood-Steel Dump Body—New York type. It is Heil's latest 1924 design steel-lined wooden body suitable for steam shovel loading, rock, stone, etc. The resilience of the wood with its steel wearing plate enables it to stand up under the most severe battering. That's why New York contractors particularly and others in the East favor this kind of body for excavating work, wrecking, and construction work under unusually severe conditions.

The sides of this body are made of 1 1/8" oak; the 2" wood floor is covered with a 3/16" steel plate; oak sides, front and tail gate are removable. The body is made with all metal stakes and stake pockets. The tail gate operating device with Heil 100% manual control is located under the run-boards. The double-acting tail gate of framed oak is protected and strengthened by a gusset plate on each side. A special supporting hinge is located in the center of the tail gate at the bottom to make platform loading easy.

The Heil Steel-lined Wooden Dump Body is built to mount with the Heil-Hydro Hoist. Dealers: If you have a customer that requires unusual service send for full information on this unit. Prices and dimensions are given in our latest Catalog 140. Write for it.

# THE HEIL CO.

1143 MONTANA AVENUE, MILWAUKEE, WIS.

One of Our Twenty-Five Distributors is Near You!

Largest Manufacturer of Steel Dump Bodies, Hydro Hoists, and Compartment Truck Tanks

### BRANCH:

2422-26 COTTAGE GROVE AVENUE  
CHICAGO, ILL.

### BRANCH:

26th AND PARRISH STREETS  
PHILADELPHIA, PA.





15, 1924

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